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ABSTRACT

Based on contacts with almost 160 people in 12 states over the course of a year's travels, this book reports on the use of television technology in many American elementary and secondary schools some 30 years after its introduction as a medium with great promise for teaching and learning. Experiences that teachers are having with the medium in the mid-1980s are described, and their exploitation of video technology is attributed to three essential elements--equipment, programming, and support--as well as the total control of programming at its point of use which has been made possible by the introduction of the videocassette recorder. The use of suitable programming for all curriculum areas and grade levels is also chronicled, with emphasis on its use to strengthen existing instruction, foster change, and promote equal access to educational opportunities. The report concludes with a discussion of the support given to teachers by their principals, media coordinators, and others who work directly with them, which underscores the critical importance of such support in realizing video's promise. The text is supplemented with tables and photographs throughout, and lists of the names of those interviewed and the sources of the video programs are appended. (EW)

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VIDEO

At Work in American Schools

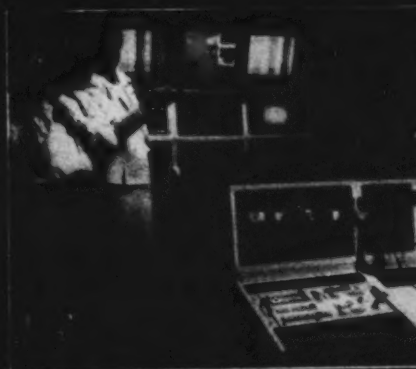
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Schools



Robert D. B. Carlisle

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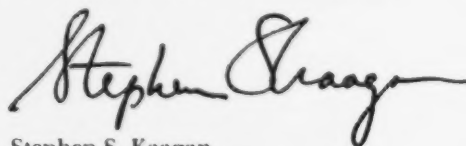
Foreword



In the early 1950s educators often described television as a medium with great promise for teaching and learning. Now, more than thirty years later, television technology is at work in many American schools.

This book, reflecting that fact, describes the experiences that teachers are having with the medium in twelve states during the mid '80s. Their exploitation of video technology, these pages relate, has come about because three essential elements—equipment, programming, and support—are now well established. The book emphasizes that, with the recent introduction of the videocassette recorder, the hardware component is at last fully serviceable, enlarging the technology from instructional “tele-” (or distant) vision to instructional video, a technology that permits total control of programming at its point of use. The book chronicles the use of suitable programming, for all curriculum areas and grade levels, to fulfill important purposes: strengthening existing instruction, fostering change, and promoting equal access to educational opportunities. Finally, it underscores that human support given to teachers within the school is the crucial element that realizes video’s promise.

Because support is so vital, I especially commend this book to principals, media coordinators, and others who work directly with classroom teachers. Its message, moreover, is of equal importance to those who shape policy and finance: video technology can be extremely valuable to instruction in all schools, for all students, if strongly supported at all levels.



Stephen S. Kaagan
Chairman, Board of Directors,
Agency for Instructional Technology
Vermont Commissioner of Education

About the Author



Robert Carlisle has been a writer and communications consultant for the past 14 years. During that time, he completed a master's degree at Montclair State College and wrote ten books. The most recent was a centennial history of The Upjohn Company of Kalamazoo, Michigan. Two other volumes were long narrative poems.

A veteran of both World War II and the Korean War, he started his career as a journalist, first on a daily paper in his home state of New Jersey and then on *Newsweek*, for which he was Detroit bureau chief. He wrote news or continuity for all three TV networks, put in a year as associate producer on NBC's *Wide Wide World*, and went to work for WNET/13 in New York as a producer, then as executive producer. Joining SUNY, he helped establish the university's state network and educational communications office. In 1968, he was invited to join the new Corporation for Public Broadcasting; he remained with it for five years, largely as CPB's first director of educational projects.

A graduate of Princeton University, Rob Carlisle lives in Montclair, New Jersey.

Contents

Snapshots	7
Equipment	13
Harvest of Options	15
Narrowcast and Cable	16
The Era of the VCR	18
The VCR: A Checklist of Strengths.....	21
Programming	23
Reinforcing Instruction	24
Expediting Change.....	32
Improving Access to Education	56
The Crucial Element: Strong Support	41
Key Roles in the Support System	42
The Strata of Support Systems	47
Afterword	59
Appendix	
A. Those Interviewed for This Book	60
B. Sources of Video Programs	64

Snapshots

Over the course of a year's travels and contacts, almost 160 people in 12 states talked to me about the strengths of video* in kindergarten through twelfth grade learning today. These conversations, with individuals at inner-city schools as well as those in private homes and in serene towns of scarcely a thousand residents, have left me with a panorama of images. This is a typical one:

- For several days last April, second graders in Room 21 of the elementary school in Cave Creek, Arizona, were absorbed in understanding the timeless struggle between predator and prey. They listened intently to **Jim White**, a stocky 40-year-old with 14 years of teaching, as he explored that conflict with video's aid.

White fits electronic materials into his lesson plans almost every day of the week. He makes them a springboard, aiming "to integrate all aspects of the curriculum." Coming to the predator-prey topic, he signed up for the VCR he shares with other second grade teachers, then put in a cassette of *Up Close & Natural's* program "In the Field."** It focused a long lens on the kestrel, a small falcon, and its pursuit of prey. Then White branched into a simulation game from Project Wild, a creation of several Western wildlife and environmental education agencies. Soon, the children, by playing the roles of predator and prey, understood the importance of *adaptation* to both the hunter and the pursued.

Jim White came to teaching after a year and a half in Vietnam as an infantry officer. He has never forgotten the resourcefulness and hardy optimism of the Vietnamese children. Ever since, he has thrown himself into instructing American youngsters, incorporating video whenever he can. A *3-2-1-Contact* unit on "Noise and Quiet" will put him on a trail through music, instruments, and rhythm, into patterns of mathematics, "all as a result of watching that program." And *Reading Rainbow's* segment on "Kapiti Plain" gives him a conduit into science, social studies, and, of course, reading and literature. "I've had success teaching some rather unique concepts by using TV to back up a lecture introduction," White says, "and the kids really seem to get the point. I see video as the way to go."

Jim White, like the men and women in the brief profiles that follow, resembles many I talked with in a year's worth of interviewing. You will meet a number of them in these chapters. But before unfolding their comments, convictions, and experiences, let me explain the background of this project.

I met AIT's executive director, Edwin G. Cohen, for the first time in about 1970. He was visiting New York to present an adult learning proposal to the young Corporation for Public Broadcasting (my role there: director of special projects, and later director of educational projects). Soon after, our paths diverged. Then, in 1979, I was invited to write a feature article

*In the pages that follow, "video" will represent the technology associated with the display of audiovisual programming on television sets in schools. It includes the use by teachers of VCRs, as well as broadcast and point-to-point transmissions.

**Sources for this and all video programming mentioned in the text will be found in Appendix B.

on AIT's new *ThinkAbout* series. Two years later, Ed Cohen asked me to help transfuse some fresh energy into instructional TV.

During the summer of 1985, AIT ran out another appealing possibility: Would I lend a hand on bringing off its silver-anniversary celebrations in 1987? My task took shape early in 1986. I was to travel, tape recorder in hand, to learn why teachers use video. What factors were responsible? What parts had been played by initial teacher interest, ease of preparation, early satisfaction, and ongoing positive results? Interviewing got underway in spring 1986 at school systems in Irvington, New Jersey, and Columbia, Missouri, and with visits to health education consultants in Wisconsin and Minnesota.

At the start, key ground rules were nailed down. In no way would this be a clinically pure, national survey. Rather, I was to search for and listen mainly to classroom video *advocates*; we would also collect opinions from their supporters spread across the school establishment. So an itinerary was mapped to the doorsteps of present users. Later on, the sweep was widened to include other-than-traditional situations—home schools, TV-delivered distance learning, and VCR services for individual pupils. We also harvested comments of a dozen students.

Along the way, we came across some very enterprising teachers—and others who shared with them an interest in video—like the following:

- In Gridley, California, "Kiwi Capital of the U.S.," **Ernestine Hepworth** presides over a first grade classroom in McKinley School, just west of the Southern Pacific Railroad tracks. An outgoing professional with 25 years' experience, "Ernie" Hepworth has a special distinction: She was the first to be chosen for California's mentor teacher program. Receiving an extra stipend as a mentor, she spends 40 percent of her time helping new teachers and developing staff.

Oftentimes Mrs. Hepworth applies those hours to advocating the values of video. She may do that right in her classroom, explaining her "learning corner," with its 13-inch monitor, VCR, and eight headphones. There, without disturbing the rest of the class as it studies "Community Helpers," she can have some youngsters review tapes on what firemen and policemen do.

With the model of Ernie Hepworth before them, all 15 teachers at McKinley School schedule video or film two or three times a week. In their grade-level meetings, some professional can often be heard saying, "Okay, here's a good tape for this science unit. Let's get it into our library."

- Nineteen-year-old **Richard Charles**, of Suffolk, Virginia, recently wound up the first year of apprenticeship training at the nearby Newport News Shipbuilding Company. He had not been sure he'd make it into the course, after graduating in June 1986 from Den-

high High School in Newport News. But he had one advantage: He had taken the multimedia course *Principles of Technology* in his senior year.

Charles studied traditional physics and math at Denbigh High. But *P.T.* armed him with a further strength, "hands-on experience." And the course's built-in video "gave us a look at how we could use" the technology, as well as "giving you visuals on how to use the equations." On applying at the shipyard, he found that *P.T.*'s science and math "helped out a lot." So did its having been a shop course. "They wanted you to have a little bit of shop," he says. He still feels he was lucky to get into the apprentice school. But he thinks that perhaps "*P.T.* gave me a finer edge."

- Every week at West Boulevard Elementary School, in Columbia, Missouri, fifth grade teacher **Jack Jensen** rolls in a VCR/TV cart to play *What's In the News*. Over time, that series has served him well in enlivening social studies.

Jensen well remembers one *What's In the News* special on deficit spending. It was "excellent," he recalls. But would his youngsters understand it? To his surprise, they got into "one of the longest discussions we had all year." And he gave the program another plus: "I don't think I could have prepared the examples which made deficit spending come alive to



This owl, another predator, is featured in "What is a Bird?," in the series *Up Close & Natural*.

the point where the kids could understand it." Admittedly "picky" about the video he chooses, Jensen believes his fifth graders generally get something from the tapes. "When I'm standing up there," he recognizes, "as good as I might be, there's always a kid or two whose mind is out the window. I don't think that happens very much with video. I really don't."

• With imagination and persistence, **Arlene Behan** has turned the media center at Riverside High School, Buffalo, New York, into a vigorous learning facility. As the school's high-energy library media specialist, she had a choice opportunity this spring to prove this strength once more.

All the two-hundred-odd tenth graders faced a social studies assignment: write a paper on the Holocaust. That topic, says Mrs. Behan, a former teacher, is "so hard for them to understand." But she had a special resource, a half-hour tape produced by a Buffalo TV station interviewing local citizens with direct ties to the Holocaust. She devoted one of the school's three VCRs to playing back that program "all day long." Word spread, and Mrs. Behan soon found many students "very receptive to viewing that tape, working the stop action mode to take some notes, and using the video as a source of information, rather than a book." Whenever she can, Arlene Behan tries "real hard" to get students on a research mission to pick a useful cassette from her subject card catalog. The videos are all listed, along with the books.

• At James F. Byrnes High School, in Duncan, South Carolina, **Jean Taylor** had a challenge on her hands: how to make her parenting classes interesting. She was sure that talks on "labor, delivery, and having children could be terribly boring."

But Jean Taylor was a full match for that. She had been something of a video buff from childhood—her father, an engineer, worked in radio/TV. As an enterprising student-teacher in the early 1970s at a prior school, she had to get the superintendent's O.K. to try TV as a learning resource (she was the first to use the medium). She's built video into her classes ever since.

Developing her family-life assignment in Duncan, Jean Taylor came upon series like *Footsteps*; it turned out to be "most effective." A natural presenter, she "comes in excited" about the day's topic, assures the class they'll see a video on it, and then "you talk about it, you give notes about it, you hand out the worksheets about it—and reinforce it with the video." After that, she says, "we usually have a very good discussion." Determined to outwit student boredom, Mrs. Taylor now introduces video at least three times a week.

• In the South Mountain area of Phoenix, the **William Hardys** are raising five children and a menagerie of birds and animals close to the equestrian trail that snakes up into the hills. Three years

ago, dissatisfied with "a lot of the things we saw happening" in the public schools, they set up a home school, sharing the instructional burdens between them.

In time they learned about "ASSET," Arizona School Services Through Educational Technology, which distributes video in their area over KAET Channel 8, the Tempe public TV outlet, every day from 11 A.M. to 1:15 P.M. To capitalize on that source, they bought a VCR, paid ASSET's membership fee, and stockpiled tapes to filter into their 9-to-3:30 school day.

"Principles of Technology gave me a finer edge."

Following a Christian school curriculum, the Hardys schedule a mix of series—among them, *The Letter People*, *You Can Write Anything*, *Math Cycle I*, and *The Art Maker*. Lori Hardy decided to make her own study units incorporating the Bible, social studies, and science. For that purpose, *Truly American* and *Discovering* "fit easily." In their geography lessons, *Finding Our Way* has been "terrific." Concludes Mrs. Hardy: "I think the video's been a very valuable tool because we don't have a lot of visual stimulation in our house for schooling."

• About four years back, **Betty Stepniak**, a teacher at Old Farmers Road School, Washington Township, New Jersey, went scouting for resources to invigorate her teaching. In the media center, she saw librarian June Johnson viewing video. Always quick to cooperate, Mrs. Johnson switched gears and introduced Mrs. Stepniak to tapes that might fit her fifth grade curriculum. For Mrs. Stepniak, that led to a habit: "I always come to June and say, 'What do we have now?'"

Mrs. Johnson has had plenty to offer, including in-service programs that Betty Stepniak has found "very valuable" because they showed her what video was available. "It means a lot more to you than just being handed a book," she said. Guided by June Johnson, Mrs. Stepniak mastered the way of the VCR in short order—"It's easier to use than films; I just pop in a cassette, push the button, and it works."

• In rural western Wisconsin, learning by the "two-way" rivals the Holsteins in the lush fields as a fact of life. "Two-way"—interactive television instruction with audio and video in both directions—has worked since 1980 for nine school districts there. Through it they offer joint classes in subjects such as foreign languages, shorthand, and digital electronics that their small enrollments would not otherwise justify.

Jane Bautch, foreign language teacher at the high school in 2,100-citizen Arcadia, has taught through this distance-learning (DL) setup since the beginning. Back then, she remembers, it was "kind of a nightmare. I had terrible headaches." But technology and interschool cooperation improved markedly, and now, she says, "I really feel at ease with the system." As presenter, she chooses one of three camera shots (on her, on an adjacent writing surface, or on her students in the studio-classroom), while monitoring on three TV sets what's happening in classes at other schools receiving her course.

This past spring, Mrs. Bautch offered Spanish I, II, and III over the two-way to a total of 63 students. Benefiting from resurgent demand for instruction in foreign languages, she sees that the students are getting better and better and are "pretty well" behaved. The overriding lesson she has learned through time is that DL students, to do well, have to be self-starters. "I think motivation is the biggest factor," Jane Bautch says.



Strongsville teachers can phone this master control center to receive video programming over their district's cable system.

- If the 28 teachers in Allen Elementary School, Strongsville, Ohio, are puzzled about choosing video or tinkering with their classroom TV, they summon fellow teacher **Ned Brown**, veteran of 15 years on the Allen staff.

As the amiable video coordinator and a regular user of this instructional resource, Brown has special stature at Allen. One result: at some time or another, all 28 of Allen's teachers will work some video into their instruction. Brown's an old hand there, by now. But Strongsville's special cable system actively helps, too. Anyone planning to show a tape simply phones the district's head end, where a bank of six VCRs can feed videos over one or another of eight channels to any of 10 schools. Housed in the basement of the Board of Education building, this center maintains an extensive video library, with staff on hand not only to schedule playbacks but also to help relate program series to the district's curricular objectives. For his part, Ned Brown has found that Strongsville has made it "about as easy as it can be to dip into a series" to complement his teaching.

- On the rich, ever-varying racial landscape of Los Angeles, 40,000 had to be turned away this past school year from crowded English-as-a-Second-Language classes. KLCS, licensed to the L.A. Unified City School Board, went to the drawing board, as it often has before, to shape a response.

On June 1, 1987, the station put its answer on the air. Mondays through Thursdays, Channel 58 viewers

"about as easy as it can be
to dip into a series"

could watch (at 6:30 A.M. or 7 P.M.) the first of 80 half-hours of what instructional coordinator **Dr. Patricia Marshall** labels a "survival course," *Learning English*. It explains how to make a phone call, go to the bank, catch a bus, or apply for a job—all to help people "survive until they can take a formal English class in one of our adult high schools."

As a firm part of its goals, KLCS has set sail to redress educational imbalances and expand academic services with televised instruction. And its offerings have attracted appreciable audiences. Its credit-bearing driver's ed course may demand strong motivation of high school students, but, says Dr. Marshall, "our numbers are really overwhelming"—a three-time jump in enrollments over the 2,000 recorded in the first summer, 1979. The 6,000 signing up early in the summer of 1987 did so in spite of stiffened enrollment procedures.

These women and men were among 158 interviewed—83 teachers, 45 administrators and others, and 30 media coordinators and library media special-



Jean Taylor turns to video programming to enliven classes on parenting and to stimulate student discussion.



Arlene Behan found just the right tape to help her school's two-hundred-odd tenth graders understand the Holocaust.



Spanish teacher Jane Bautch keeps an eye on the three monitors linking her to students in other schools.



Teacher Betty Stepniak shows her fifth graders that it's easy to use the VCR.



Jack Jensen's students can't keep their seats when they are watching *What's in the News*.



Apprentice Richard Charles has little time to relax since he started working and studying at the Newport News Shipbuilding Company.



The five young children of William and Lori Hardy are taught at home by their parents, with the help of a computer and programming from ASSET.



Addie Kinsinger, Associate Director of ASSET, shows off the ample programming offered by the service to schools and to families like the Hardys.



Ernestine Hepworth shows one of her first graders how to turn on the VCR.

ists. The teachers averaged 16 years of experience; a dozen had been in the classroom at least 20 years, and three of those had a total of 100 years in experience. All in all, our conversations reached into more than 70 communities in 12 states.

Some distinct themes emerged. The professionals testified over and over that video helped them do their job, that it was a valuable tool, that, in fact, it could illustrate points in ways difficult if not impossible for them to imitate. Further, as you can sense from the profiles in this chapter, interviews underscored that video use involves three variables of crucial importance: *equipment, programming, and support*. When they all come together properly, chances are very

good that in that place and time, video will work well as a learning resource. Each chapter that follows will deal with one of those fundamental variables.

There have been extraordinary changes in how electronic media have been applied to education since AIT opened its doors in 1962 as the National Instructional Television Library. By themselves, improvements in equipment have transfused variety, dependability, and ease of use into a learning resource that too often had been limiting and frustrating. Of all the changes, the VCR more than anything else—almost 90 percent of American public schools have at least one unit—has allied video with education in ways wholly unimaginable 25 years ago.

Equipment

Dorothy Baer's trial run at using video for instruction had a bleak outcome: disillusion. But a turnaround spurred by new technology took place, and the Beloit, Wisconsin, teacher came away armed to argue for video with the best of them.

It happened that after raising five children, Mrs. Baer returned to her earlier occupation in the classroom. At Beloit's Memorial High, she went into teaching home economics and family life, with an accent on personal relationships. Attending a home ec conference, she saw AIT's *On the Level** and traveled home "all enthused" about presenting it to her tenth-through-twelfth grade classes to steam up some discussion.

When she tried, though, "the timing was wrong." Her class hours and the broadcast schedule didn't match. Then VCRs appeared, and the TV set in her room was linked to a recorder in the media center downstairs. The situation looked promising. But Mrs. Baer's plans were scuttled by a "breakdown in communications" with the media specialist, as she well remembers:

I'm up on third floor, and he was down on second floor. And he was plugging it in as soon as the bell rang, and I was still taking attendance. Or else I'd turn the TV on, and I'd have the wrong channel, and he'd have run ten minutes of it, and I'm still up there waiting for it. It got to be more trouble than it was worth, so I kind of dropped it.

Now, yet another change cropped up: She was told she'd have a VCR in her classroom. So she began signing out *On the Level* tapes and running them for

the class when it suited her. The results were gratifying. "I can take time to build up motivation," she discovered, "and whenever the class is ready, or I'm ready, then I can show it. And we can go back to it again. It's just much, much nicer. Now I have control. Now I can use it as a teaching device."

Dorothy Baer's experience has to sound familiar to many a teacher. In the first years of broadcast instructional television, professionals often faced an uphill struggle to fit televised materials into their classes. Turning on the TV was easy enough, but all too frequently the broadcast schedules happened at the wrong time for their class schedules, especially at the secondary level. School personnel had no control over the station's air times. The consequence was inevitable: ITV use languished too often in too many districts.

In those early days, live black-and-white TV held the spotlight, until changes gradually eased it into the background. The quad videotape recorder entered the picture in the late 50s. A decade later, color began making inroads. Another decade passed, and a new machine, the videocassette recorder, emerged. The inexpensive, lightweight, long-playing VCR dug in and secured a beachhead in the consumer market; teachers were consumers, too, and the intriguing device captured the imaginations of many.

Today, VCRs are fixtures at most American schools. As the 1987-88 academic year started, according to Quality Education Data, 70,037 schools (out of 78,991) had at least one recorder; fewer than 29,000 had one in 1982. Almost 12,000 owned two to six

*The source of this and all other video programming mentioned in the text will be found in Appendix B.

Video Units in Schools

Exclusive	Total	2+ Units	6+ Units	11+ Units	Unclassified Units
Elementary	42,787	10,860	599	33	1,996
Junior High	11,428	4,718	361	68	473
Senior High	14,274	6,630	829	197	785
Other	1,548	367	18	5	163
Total	70,037	22,575	1,807	303	3,417

QED June 1987

units, or more, in 1986-87. This number had nearly doubled to 22, 575 for 1987-88.

AIT's field interviews in 1986 and 1987, although not a national survey, learned that VCRs have moved into schools with a pace uncommon in public education. In South Carolina, almost 90 percent of the buildings have VCRs—an average of two VCRs apiece. The state bought its first smaller-format recorders some 16 years ago, but its buying surge occurred only in recent time, after VCRs flooded into the home market. Wisconsin estimates that all 432 districts have machines, and three-quarters of its 2,000 school buildings have access to them. In just three years, the 12,000-student district of Columbia, Missouri, has bought 100 units for its 23 buildings.

The Plumas (CA) Unified School District had only a few VCRs for the district's 200 teachers in 1984. By the end of the 1986-87 year, there were some 34 of them. Director of Curricular Services Joseph J. Hagwood expects that total to double by summer of '88; he forecasts the District will be out of film use and "exclusively in tape" the following year. When WNED-TV, Buffalo, New York, inaugurated its Video Library Project in 1984, it offered to help cooperating schools buy recorders at a bulk rate. By summer 1987, more than 950 have been bought (school cost: less than \$660 for an industrial model) for 445 buildings.

A sense of the potential can be drawn from more local observations. Said New Jersey librarian Anita Lockwood, "All the kids have machines at home and are familiar with videocassettes. The technology's easier, and it's everywhere." Mrs. Joe Allen, South Carolina English teacher added, "A child who doesn't have running water at home will have TV, and a VCR, too." And, said Calli Merrick, principal of Aridondo School, Tempe, Arizona, when you compare a VCR with a 16 mm film projector, running the recorder is "a piece of cake."

Talking with people like Mrs. Merrick, you see that advent of the VCR has given the teacher video alternatives quite unknown two decades ago. In New York's Chenango Valley, the town of Greene is spread across a tapestry of rolling farmland. At Greene's primary school campus, second grade teacher Joanne Simpson plays a variety of options. This past year, it

suited her to take more than three-quarters of her video right from broadcasts over public station WSKG, 20 miles south in Binghamton. At times, she asked media aide Florence Lewis to tape a program off-air on one of the building's two VCRs and hold it for playback at a better hour, using the building's distribution channel or a cart-mounted recorder. Or Mrs. Simpson entered a request for a tape from the 4,000 at the "BOCES"—Board of Cooperative Educational Services—22 miles north in Norwich. If the school's VCRs were tied up, they'd borrow one in the district. On the whole, these choices worked well for Mrs.



Dorothy Baer's students can see this scene from the program "Getting Together" in the series *On the Level*.

Simpson, who believes that "there has never been a major problem of scheduling on our own circuit."

Harvest of Options

Once, school districts had only one way to receive ITV: from open-circuit broadcasts on the local educational television station. Now, far more possibilities, like those in Greene, New York, present themselves. As the AIT field visits underlined, they include broadcast, narrowcast, cable, and building distribution systems, with all manner of combinations. And, of course, adding the VCR has given a kaleidoscopic twist to the alternatives. All this makes it far easier for a teacher to sign up video as a classroom tool.

Broadcast, as it happens, which was the original delivery method, continues to be a main force in propelling the signal across large parts of the nation's geography. But what happens then at district and building levels no longer sticks to tradition. Variety now spices the educator's life.

Take Cleveland's public TV station, WVIZ. It has been broadcasting ITV for 22 years, reaching a student base today of 460,000. And until recently, user-schools' clear preference has been to receive the programs as broadcast. In California, the open-circuit ITV schedule of San Francisco public station KQED, expanded by simultaneous feeds over KVIE, Sacramento, and KMTF, Fresno, reaches about one-third of the state.

During the school year, the eight noncommercial TV transmitters of Wisconsin broadcast identical instructional programs throughout the state; almost two-thirds of the series for kindergarten through fourth grades are used live. Arizona's two public TV outlets, KAET, in Tempe, and KUAT, in Tucson, reach the far corners of the state with a package of back-to-back video programs constructed by ASSET, Arizona School Services Through Educational Technology. Recently, about one-quarter of ASSET's member-schools scheduled viewings at broadcast times; the rest taped for play at local option. And South Carolina's instructional TV reaches elementary schools through the 11 transmitters of its "red" and "green" open-circuit networks. Teachers can take the programs live, and many do. (Robert Reese, chief supervisor of utilization for the state, adds this footnote: "We know most of the schools record the programs for later use.")

VCR options notwithstanding, though, individual professionals continue to turn live transmissions to their advantage. At Cowpens Elementary in South Carolina, second grade teacher Andrea Mathis tuned in to *The Word Shop* every Monday morning at 11, when the network transmitted it. And in Hamburg, New York, Earl Skingley, a teacher with 34 years' experience, has had his fifth graders watch *What's In the News* live every week; it could have been taped for

him at his Clover Bank School, "but everybody seems to be using the VCR." Another professional with long experience at the chalkboard, Doris Wagner, of Collax, Wisconsin—she's been teaching for 37 years—has booked live video almost daily for her first grade class. ("It's a real plus," she's found. As for her class, if there's a chance she might not turn on the set for a broadcast, "Believe me, the children will tell us!")

Off to the southwest in Ellsworth, Wisconsin, two sisters-in-law, Judy and Shirley Bostrum, both teach second grade classes—and both schedule video units as broadcast, alerting each other about upcoming programs. And while fifth grade teacher Tomasina Burns could request a VCR cart for her class in Egg Harbor, New Jersey, she has preferred going four doors down the hall to the media center's big-screen set to view programs when they're aired by New Jersey Network. It presents "no problem"; besides, around the carpeted center's TV, she says, "there are no desks or tables, so the children can sit and watch in comfort."

"Believe me, the children
will tell us!"

When it comes to broadcasting learning materials live to home viewers, few public TV stations have been pressing that option more aggressively than the Los Angeles Unified School District's station, KLCSS. On the air since 1973, it has made a life style out of serving thousands who need an educational boost of one sort or another.

Individual students in home schools, in marked contrast, have also put live ITV broadcasts to work. Every state now permits home schooling, says *Changing Times*, and formal living-room learning serves anywhere from 120,000 to 260,000 children. Eight-year-old Danielle Maher lives on a four-acre farm in Ceres, California, outside Modesto, and is in her third year of home education. While the Mahers have a VCR, they prefer taking KQED's ITV output live. "When it comes on is when we do it," says Mrs. Linda Maher.

Cyndi Wright, of Cottonwood, Arizona, is also learning at home with a boost from ITV, in this case the live broadcast from KAET, Tempe. Wheelchair-bound, 15-year-old Cyndi had set a goal of entering high school this year; a tutor, Mrs. Virginia Brown, was assigned to help. When ASSET programming aired in the midday hours, Cyndi tuned in, watching as many as 20 programs a week, then discussing them with her tutor on Mrs. Brown's arrival in the afternoon.

Narrowcast and Cable

Narrowcast and cable have been assigned special duties in delivery of televised instruction. If they're available, they give the classroom teacher and members of the media support team even more choices to weigh. And, once again, our interviews showed a frequent tendency to crossbreed an older work animal with a young but impressive newcomer, the VCR.

Cleveland's WVIZ knows full well how to augment its broadcast service with a narrowcast system, Instructional Television Fixed Service. That station has been using an "A" cluster of channels for ITV; its A-3 transmits to some 100 cooperating schools any instructional program they ask for, an on-demand "soft feed" replacing the station's earlier tape duplicating service. "C" channels send education and information to area hospitals, and the first of WVIZ's newly authorized "B" channels will serve Cleveland's public schools, while other "Bs" may carry vocational education and retraining for adult workers.

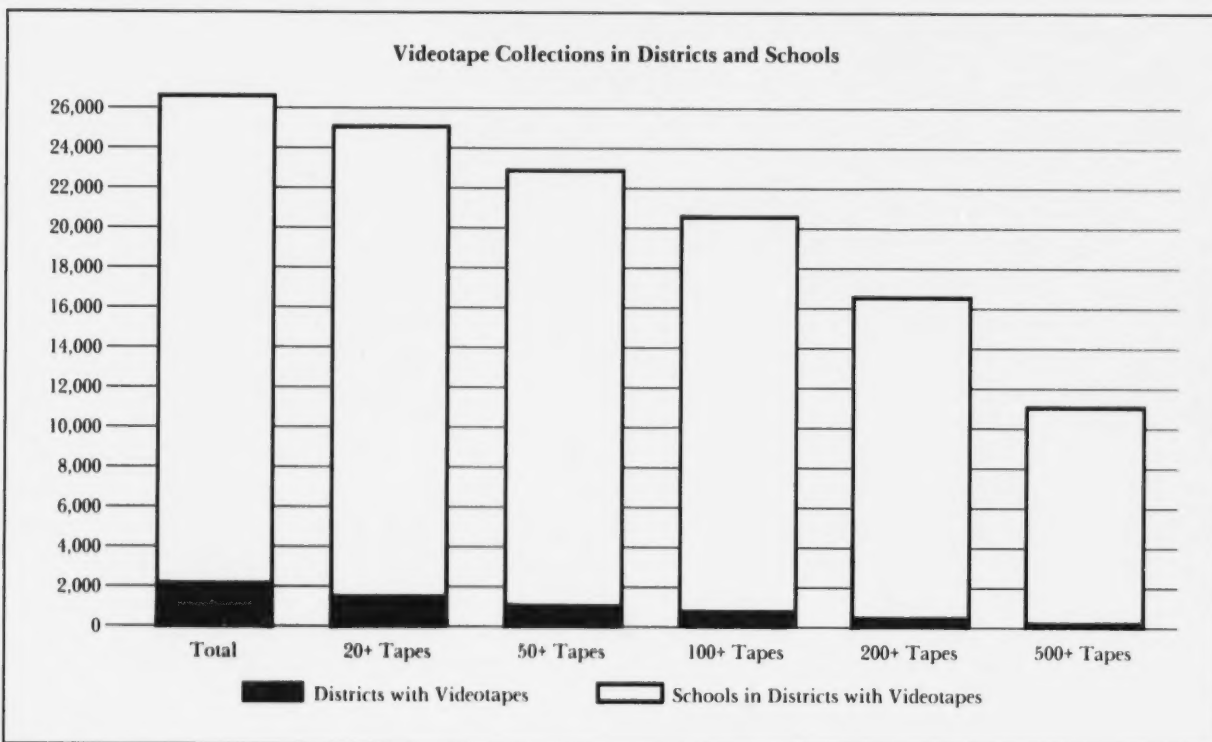
Meanwhile, South Carolina has set out to cover the state with ITFS systems—38 of them, ultimately, each one charged with transmitting for grades seven through twelve to a local group of 15 to 18 schools. No longer will South Carolina's Department of Education lease phone lines to deliver ITV. The less-

expensive option, ITFS, reached 357 schools (of a potential 560) as of June 1987.

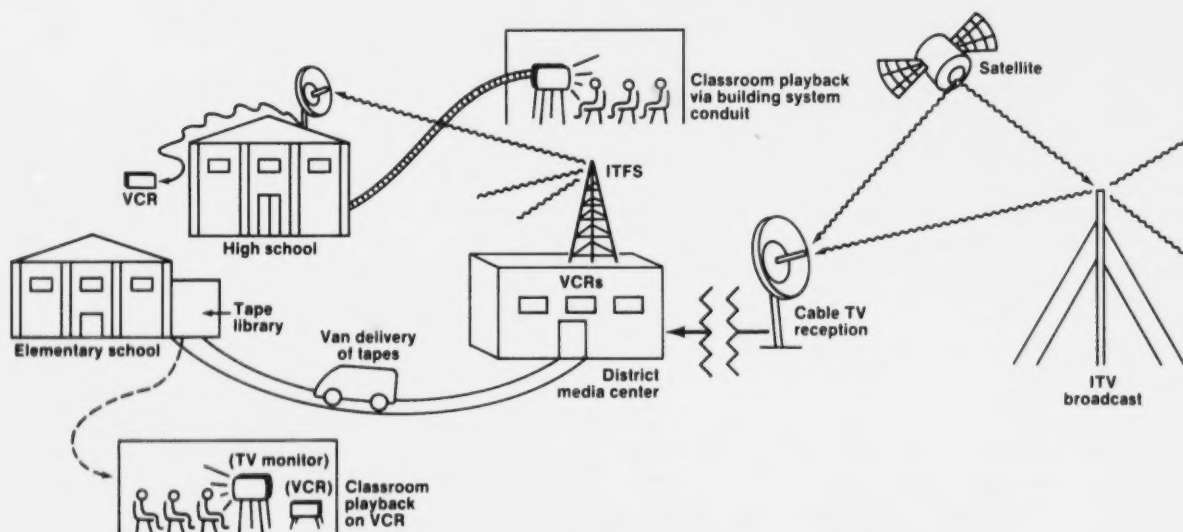
Some of these ITFS systems will be lodged in distribution centers. Lexington County District Two's center, already on line in West Columbia, answers teachers' needs in a handful of ways: by transmitting



Media coordinator Michael R. Kolesar demonstrates how technology helps students at a distant school join a Latin class.



QED June 1987



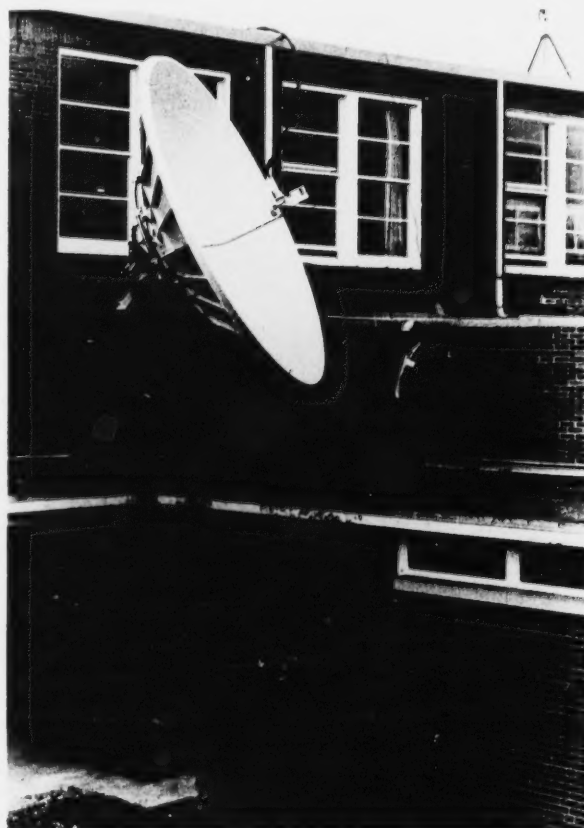
This generic system combines broadcast or narrowcast with VCR use in a media center or class. Actually most systems have some, but not all, of these elements.

over its ITFS channels any programs (its inventory late this spring—3,000 tapes in 161 series) requested by teachers at the 16 schools in its service area; by recording and storing series that may be in demand later; and by duplicating tapes for nearby elementary schools and for those in neighboring districts lacking ITFS. The dozen VCRs in the center's racks testify to how the game has changed—and improved.

At various points on our itinerary, **cable TV** turned out to be another intermediary in getting instruction from one point to another. Distances covered vary, but the result is the same.

In the Sacramento area of California, KQED's ITV signal reaches San Andreas Elementary School through a cable company's donated channel. To the east, among the Sierra Nevadas, the same materials ride from a downlink satellite receiver through a cable circuit to reach the 122-pupil Diamond Valley School in Alpine County. And cable connects the high school media center in Oregon, Wisconsin, with other schools in town, acting as the conduit for tape playbacks. There's a longer carry in Columbia, Missouri, where the local cable company picks up ITV from KCPT in Kansas City and deposits it in Columbia's media headquarters on North Providence Road.

Cable has also helped make a reality of "distance learning." You can find two-way interactive television education going on among nine Western Wisconsin high schools or between two high schools in New York's Westchester County, quite like other "DL" projects. This past spring, the Wisconsin model was sharing Spanish I, II, and III among four of its schools by live "two-way," while the link between Pleasantville and Ossining High Schools



John M. Bedford, of the Strongsville, Ohio, school system, stands beside the satellite disk that receives programming directly from WVIZ.

was carrying several levels of Latin, with video and audio traveling in both directions on a cable company's two public access channels.

The Era of the VCR

In the fall of 1986, Adrian Roberts, then media coordinator in the Office of Education, Butte County, California, sized up the special strength of the videocassette recorder:

"We're talking about a whole new approach to instructional delivery," he said. "It may be a 16 mm film on a cassette, but you're going to be using it in a totally different way." Stopping the tape, backing it up, pausing to get students to predict what will happen next—"these are totally new instructional techniques unique to video," he said. Then Roberts pointed to a related reality that seals the whole compact. "Teachers have video machines at home," he observed. "Now they know how to use all the buttons."

When you add the machine's simplicity to the range of what else the VCR can do, you have the makings of an instructional bonanza for the classroom teacher. Certainly the AIT interviews in 12 states said quite clearly that this prospect is more than merely a mirage. Barbara Ross, Consultant to the "Gifted and Talented" program in the schools of Elizabeth, New Jersey, offered her observation on the VCR's capacity. "You've got a lot more freedom," she commented. "There's nothing locked into a special day at a special time." The result? "I see a lot more use of video in general," she says. No longer are teachers, especially at the secondary level, confronted



Teacher Ray Noll uses his home VCR to assess possible tapes for a new U.S. history class.

with rigid broadcast schedules unrelated to class schedules in their buildings.

Both at home and in class, the VCR seems to be making a difference in education. Teachers *do* have recorders in their house or apartment; they *do* turn them on for class-related tasks. Take the educators of Columbia, Missouri. Marcia Murphy of Russell Elementary previews tapes at home to be sure that scheduling them for her class would be "useful." Ray Noll of West Junior High has put his VCR to work in assessing possible tapes for a new U.S. history course. And kindergarten teacher Linda Giddings takes home *The Letter People*. Booking her own time for the task, she fills out index cards with reminders on where to stop the tapes in class and ask the children key questions.

For teachers, the machine's "Record" function also gets a workout at home. Curriculum supervisor Anna McHale, of Park Ridge, New Jersey, sets timers on her two VCRs to collect ITV from New Jersey Network's daytime transmissions; she then shares the tapes with school colleagues at their request. At the high school in Rancho Cordova, California, science chairman Don Yost keeps a weather eye peeled for applicable programs coming along on KVIE (from KQED). His procedure last fall was unique:

"I hired my mother to go over to my house and record several things I like on Wednesdays. I had to build her a tool shed to pay for my recording. It's not a fancy recorder, so Mom picked things off for me. It's O.K.: She did her wash and things."

Another departmental chairperson, Mrs. Joe Allen, of James F. Byrnes High, in Duncan, South Carolina, holds her home VCR in reserve. If for any reason the school media center cannot pick up something she wants for English, then she'll program the timer to make the recording on her own tape deck.

In an ideal world, each classroom would have its own VCR, and at least one school on our itinerary came up to that standard. At the elementary school in San Andreas, California, southeast of Sacramento in Calaveras County, Linda Burrard serves as both assistant principal and teacher. Applying for a state grant, she wound up getting a monitor and VCR for all 14 of the teaching spaces. Bev Wolf also has a recorder all to herself at her Phoenix, Arizona, school for the severely emotionally impaired. When math or perhaps *Self Incorporated* appears on the ASSET schedule, she sets the VCR timer in the viewing room, shuts the door, and steps into the next room for other class activity.

Beloit, Wisconsin, teacher Carol Johnson usually has a VCR in her Robinson School room. Her system involves setting an alarm clock. Then, she explains, "If something needs to be taped, the student nearest the TV turns off the alarm, starts the tape, and switches it off after 15 minutes. It works out nicely." Californian Rob McClurg, a mentor teacher at Jack-

son Elementary, El Dorado Hills, set up a learning corner around the VCR. His sixth graders can make the recorder do their bidding, as he elaborates:

"Once we've seen the program as a class, using the pause mode for discussion, kids go over to the 'learning center' corner. They turn the TV around so no one else has to see or hear it. They sit on the couch and watch the program again with headsets on. They take notes and work the remote to get the player to do whatever they want while they're over there.

But what if access to a VCR is *not* available to a video-using teacher? Do aggravations result from the competition over the few units available? They may, but in the course of our interviewing, annoyance at this fact of school life did not surface.

"It's called survival."

If our talks with professionals support any generalizations, one would be that for the most part, teachers do *not* have a classroom VCR they can call their own. But, much more to the point, they adjust. They roll with that reality.

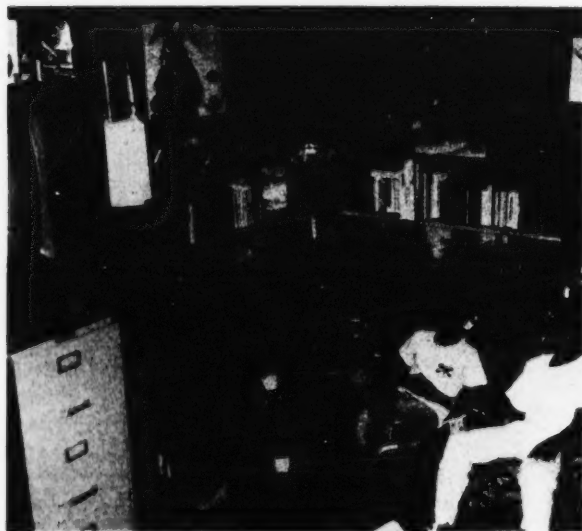
Anywhere you turn, you find the proof. At 600-student Dodge Elementary, in Williamsburg, New York, Doreen Dell teaches the fourth and fifth grade levels, and has for all of her 20 classroom years. There, a teacher has to sign up for a VCR. "It's very easy," she notes. "We request the player nearest to us." In Newport News, Virginia, electronics and power mechanics teacher Robert D'Agostino applies

for access to a VCR every Monday, to play back video components of *Principles of Technology*. He may not be exactly ready for the video, he says, but "I always plug ahead because our school has close to 2,400 students, and our VCRs are in demand." The same kind of sign-up process applies at the 320-student Oxford Academy and Central High School, in Oxford, New York. The building has two VCRs, one upstairs, the second downstairs. English teacher Lenora Snedeker says, "I haven't seen any problem with the sign-up system. I think it works well."

Realistically, though, the live-wire teacher gets on the sign-up list ahead of time. Dave Bensley uses the last week of school to request regular taping and playback of *Assignment: The World* for the fall. Bensley knows that of the 75 professionals at his high school in Sherburne, New York, maybe 60 are "very regular users" of video. So he signs up early. "It's called survival," he says.

Installing building distribution systems can be a strong alternative to rolling cart-mounted VCRs through the halls. South Carolina exemplifies the logic in this. More than 80 percent of the state's schools have these building conduits; almost 90 percent of the buildings have VCRs to record incoming video and play it later for individual classes. For Martha Zion, civics teacher at Brookland Cayce High, outside Columbia, the building's media specialist tapes *Portrait of America* the night before, then transmits it early the next morning to Mrs. Zion's first class. It's an arrangement she requests for the whole school year.

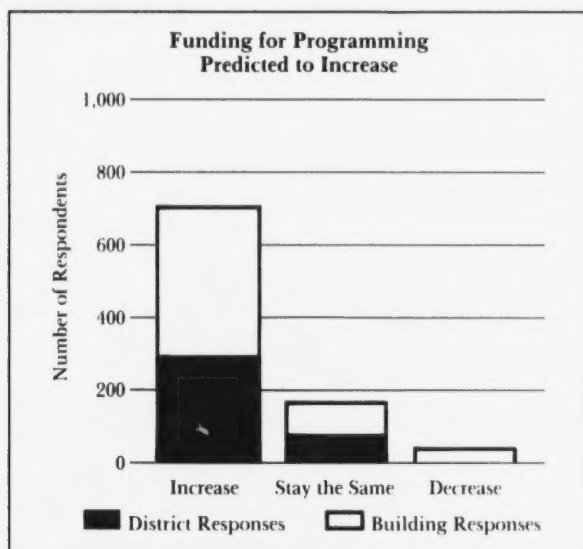
Teacher Jim Ray installed his own building system at Herbert C. Green Middle School, Placerville,



Rob McClurg's learning corner permits his sixth graders to listen and watch without bothering the rest of the class.



Martha Zion's students watch *Portrait of America*, recorded the night before for her class's use.



QED: AFT Survey 1986

California. In a room scarcely larger than a closet, students man the "head-end" VCRs, feeding video to teachers at requested times. (The several building school, located in the foothills, had ample reason to substitute internal cabling for VCRs on carts. "We have our share of inclement weather," explains Ray, "so you're talking about wheeling VCRs through the rain and snow.")

But whether schools have distribution channels or not, some have made a practice of recording ITV signals and stockpiling the tapes for use later on. The three-year-old Video Library Project of WNED-TV, Buffalo, New York, stands out as one example. Last fall and again in the winter, WNED broadcast back-to-back ITV series right after midnight Cooperating schools set VCR timers to pick up the transmissions. Later in the morning, school-based media specialists would process the tapes for teachers' purposes. How have WNED's "clients" reacted? Says English teacher-media representative Delia McAuliffe, "It's the best thing that's happened to television in the schools since ever! It's amazing." Mark Banks, media specialist from Niagara County, New York, recalled that before the WNED project, his Starpoint School District missed a lot of programs. This way, he explained, "we don't have gaps in series."

Increasingly, schools are finding it preferable to put their VCRs to work stockpiling tapes, rather than limiting themselves to in-class reception of live ITV broadcasts. This past school year, the percentage of Cleveland-area schools taping programs climbed for the first time to more than 50 percent. This is fine with WVIZ, Cleveland's public TV outlet. Explained Director of Educational Services Thomas A. Valenti, "We're really trying to push the schools to build their own library."

More and more, hybrid systems are becoming the norm, systems that may combine live transmission with VCR power and in-school building distribution. As one indicator, every Thursday, WSKG, in Binghamton, New York, airs *Assignment: The World*. In Sherburne, due north, social studies teacher Dave Bensley has a standing request on file with his media center at the Sherburne-Earlville Central School to tape the series. Then, when Friday arrives, one of the center's five VCR decks transmits the program by the internal cable for each of Bensley's five sections of seventh and eighth graders.

The VCR offers teachers in diverse settings more ways to go. In her Acampo, California, home, Mrs. Janice Allison operates the George Washington Carver Christian School for her 13-year-old daughter. The Allison's can receive KQED's live output of ITV; they also have a VCR. If something on science is broadcast, Mrs. Allison will record it for playback later that day. In Bisbee, Arizona, ITV from KUAT, Tucson, was taped this past spring at Cochise County's Juvenile Detention Center. Both academic and personal-guidance programs were then played on the center's TV for the young people temporarily held there.

At Rock Bridge High, Columbia, Missouri, students reviewing or working on reports can request tapes from the district's media center, then view them in the school library. Much the same occurs at James F. Byrnes High in Duncan, South Carolina. When students have been out sick, librarian Judy Parham will set up a VCR for them to see a program already shown in class. And teenagers taking social studies at the high school in Bloomer, Wisconsin, north of Eau Claire, travel a similar trail. Now and again they have to make a presentation in class—on drug abuse, anorexia, or perhaps suicide. They may have to line up a guest speaker and also research the topic. So they head for the school library, where librarian Violet Raykovich has some 200 video titles on file. Chances are a tape will add to their store of information.

If teachers can home-record on a VCR, then why not their students, too? Beloit's Dorothy Baer encouraged her class to do it, saying, "You've watched a program and think it's something we should talk about? Tape it and bring it in." Coming at this option from a different direction, South Carolina English teacher Mrs. Joe Allen wanted her teenagers to see Robert McNeil's *The Story of English*. But the broadcast time made a hardship for them. Later, this was what she found: "They taped it to watch on Sunday afternoon. They were getting together to view it because I had specifically requested it."

Now and again, you hear about a situation where the VCR filled a unique educational need. Holly Foster, a student at the high school in Oxford, New York, set out to get the most academic mileage from her last year there. And soon enough her schedule was

jammed. She had signed up for Advanced Placement English, but also wanted to take a Shakespeare course. The trouble was that Lenora Snedeker wasn't going to be teaching it. Holly persisted. Would Ms. Snedeker tutor her, she asked. Their solution: Holly would view BBC Shakespeare plays in cassette form either on a school VCR or at home, then discuss them with Ms. Snedeker in three individual meetings a week. ("Lynn" Snedeker thought up some added rigors: quizzes on each act, a paper, and a major test on the play.) "It worked out beautifully," the teacher reports.

Graduating second in her class of 73 and winner of three scholarship awards, Holly Foster has enrolled in Alfred University for the fall of 1987, planning to major in ceramic engineering. Lynn Snedeker won't forget her. The teacher had to keep abreast of the tapes Holly was watching, to be sharp for the one-on-one discussions. All in all, says Ms. Snedeker, "it kept me on my toes."

The VCR: A Checklist of Strengths

In only a few short years, the videocassette recorder has fertilized the seeds of benign revolution in kindergarten through twelfth grade education. AIT's series of interviews revealed that in 70-odd communities, at least, a healthy crop is rising. The voices of teachers and others identified these positive attributes of the VCR:

- It is **easy to use**. This typical comment came from teacher Jan O'Connor in Washington Township, New Jersey: "There's nothing hard about using it. All you have to do is shove in a cassette."



Arlene Behan checks through her school's extensive collection of videocassettes.

Ease-of-use also applies to children in class. Bette Priest, a teacher at Curry School, Tempe, Arizona, quickly hoists her colors. "I'm really into high-tech," she declares, "but I'm also into finding the most efficient way to help kids," and video is one of them, she feels. At one point, she was having her youngsters watch *The Art Maker*. Some were puzzled about one step in constructing a three-dimensional scene with paper plates. Then, recalled Mrs. Priest, "because

"almost 100 percent free
of any problems"

they all know how to use the VCR, they took out the tape, found the place in it that they needed, looked at it again, and went back to their desks to do it."

- It is **flexible**. At Ridgeway Elementary, Columbia, Missouri, Susan Fales has worked the VCR to "stop and back up, or go back and review something the children didn't understand." Her viewpoint: "You get a lot more flexibility as a teaching tool than with film."

- It is **reliable**. The longtime coordinator of instructional media at James Caldwell High, West Caldwell, New Jersey, Richard R. Jessup, believes the tape-recorder format "is almost 100 percent free of any problems." His school fields six VCRs, in all, for some 650 students.

- It is **transportable**. A woman from Wisconsin can testify to that. Teacher Barb Widder, of Randall School, Madison, tapes at home "a lot," and now and



Jan O'Connor "shoves in a cassette" to show her class a program.

again totes her own VCR to school to give her more flexibility in playing back a tape for her class.

• It is **affordable**. The sense of the economics is embodied in comments by New Jerseyans Judy Transue, librarian at Florence M. Burd School, Andover Township, and Dick Jessup, of West Caldwell. Said Jessup, "the cost factor of half-inch VHS has been tremendous because it's less expensive," compared with, say, renting films. Where his school was once spending "thousands" on films, it is now "getting into" video. In a way, Mrs. Transue's comment echoes that. "I was all set to buy a new film projector last year," she recalls, "but felt the money would be better spent on a VCR." As VCRs made by various manufacturers swept through the consumer market, the price dipped notably. And while it has increased recently among Japanese imports due to a drop in the dollar's value, a VCR still costs approximately one-half as much as a 16 mm projector.

Acknowledgments in many communities this past year of the VCR's strengths contributed to this inference: *Equipment* no longer stands as a barrier to any teacher who wants to apply video to the instructional process. The VCR, especially in combination with ITV, ITFS, and cable links, provides teachers with reliability, simplicity, and availability, attributes associated with the best instructional tools. What's more, the VCR is affordable.

The VCR is no help to any teacher, however, unless the **programming** it shows serves a useful instructional purpose. Are such curriculum-related programs available? Do these materials help children learn? In the next chapter, a selection of teachers and administrators will give their answers on program matters like these. Beyond that, the final chapter will point to the help that's available when teachers decide to go ahead and add video to a traditional classroom approach.

Programming

Ellsworth is one of dozens of small towns seeded across the dairylands of western Wisconsin. The last week of May, children at Ellsworth's Newcrest Elementary School skipped cheerily toward summer break. Its 380 students reveled over the approach of lazy days, while parents began thinking of the polka festival in late June.

The respite gave second grade teacher Judy Bostrum some leisure of her own to think through the school year just closing. One aspect worth reviewing was the year's ITV. Newcrest classrooms have received televised instruction for the past 17 years, and Mrs. Bostrum has built up as much experience with video as any of her colleagues. This year, she had chosen to reinforce her teaching with two to three program units a week; she was quite willing to receive them live—Newcrest has just one VCR—as transmitted by the Wisconsin Educational Communications Board's Channel 28 in Menomonie. *All About You; Like You, Like Me; Teletales; Gather 'Round; Well, Well, Well with Slim Goodbody**—these were among the series she decided to show.

With 15 years on the job, Mrs. Bostrum has a clear rationale for turning on the TV. "It's sometimes nice to have somebody else talking to the kids," she says. As for quality, "I've also felt," she adds, "that the programs we've watched have really been good, things that I would not be able to duplicate in the

classroom, especially some in science." Experiments invariably go smoothly on TV, but "they don't always work in my classroom," she's found. And how have her classes reacted to seeing video? Very well, from the sound of it: "Once the kids get the hang of it, they're a big help. They tell me it's time for *Teletales*, or 'Don't we have a program today?' They're good at reminding me."

Judy Bostrum's comments could have been made by teachers in dozens of communities on our project's itinerary. Many talked in concrete terms about how video programming helped them do their job. And some of their students also spoke about the pluses of being instructed through VCRs or other TV means.

These responses on the uses of video fell into three categories. First of all, professionals reported that recorded materials reinforced their instruction. In this respect, effective video programs were to be found in all the major subjects across the spectrum of grades; further, they were accessible to teachers, and were being used. Secondly, video helped bring about change in content or teaching methods. And in a third category of applications, it promoted equal access to education. Conversations over the course of a year contributed a wealth of anecdotes to illustrate these broad functions and some fractions of each, as well.

*Sources for these and all other video programming mentioned in the text will be found in Appendix B.

Reinforcing Instruction

Teachers at all levels of schooling spoke of how video helped them do their job. And more often than not, they spoke with emphasis and enthusiasm.

High in the tall mountains of California's Alpine County, children from Markleyville, Woodfords, and a few other hamlets go to one of two schools in the district, Bear Valley or Diamond Valley. Lisa Fontana, one of six classroom teachers at Diamond Valley, taught kindergarten this past year, driving down from her home perched on a mountainside at 6,500 feet.

One video series Mrs. Fontana put to use was *All About You*. It happens that Diamond Valley has what she calls a "great" kindergarten through twelfth grade health curriculum. For her, *All About You*, "works nicely with whatever unit I'm on. It's not like any kind of enrichment. It really fits so well with what we're doing."

Ruth Gunderman, teaching at third and fourth levels in 80-year-old Randall School, Madison, Wisconsin, expects video to "really give new information that I can't provide in any other way." And she's discovered winners, taking her 23 students downstairs to the media center to view such series as *It Figures* ("super!"), *Discovering* ("I'm pretty impressed with it"), and *The World's Children* ("it's excellent"). Among the materials he schedules in Strongsville, Ohio, sixth grade teacher Ned Brown, shows *Cover to Cover* and *Storybound* "to generate interest in some of the books we want to promote."

"It really fits so well
with what we're doing."

Don Yost has been teaching science at the high school in Rancho Cordova, California, ever since it opened some 23 years ago; he has chaired the science department, and this past year was named the district's "Teacher of the Year." He believes in making video work for him in class, spelling it out like this: "The more ways you can present a concept, the better a chance the student will stick with it. It's one more tool to help a student learn." Hence, he employs such series as *Eureka*, treating its programs as "just another presentation, not the whole lesson." On balance, Don Yost applauds video, saying, "The new programs in chemistry and physics: They've been great to use."

A fair number of professionals on our circuit talked of how video can reinforce instruction for youngsters who happen to learn best from visual

sources. Principal Calli Merrick, of Aridondo School, Tempe, Arizona, explained:

Since you have 36 kids in a classroom, all of them may not learn via the spoken word or the chalkboard. Some may get more out of what you're trying to teach by using video. It's a medium which just enlarges the spectrum of ways that you can teach a child.

New Yorker Catherine House, of Ransomville, turned 3-2-1 *Contact* into an effective hook for her underachievers. Maybe they were not into reading the science text, but watching the series gave them enough background to get into the thick of the discussion after the playback. Looking at this aspect with a student's eye, high school junior Maureen Hoke, of Oxford, New York, wrote that videotapes "help kids to better understand things by enabling them to visualize them." After all, she added, "today's students are geared toward watching television so they respond better to learning if it comes from television."

Available in All Major Subjects

Teachers from widely different parts of the country, recounting their experiences, reported that video



Louise McNamara teaches children to avoid dangerous substances in *All About You*.

stimulated pupil interest in learning about a full array of subjects. A good part of the reason may lie, as student Maureen Hoke advised, in the allure of television for the younger generation. Teacher Andrea Mathis, of Cowpens, South Carolina, told of her second graders' reaction to TV in class, echoing the comment of Wisconsin's Judy Bostrum. "They look for it," Mrs. Mathis said. "They're very quiet and attentive when it's on, and they remind me if I forget to turn it on."

Consider first what video has done to brighten the appeal of **reading**. In El Dorado Hills, California, Rob McClurg teaches sixth grade at Jackson Elementary. He had tried and tried to get his class to read *Sounder*. The school library had three copies on the shelf. They were pristine; not one student rose to the bait. Then he showed the *Storybound* unit on *Sounder*. That did it. "I had to run out and buy other copies," he recalls. "I had to go to the used-book store, and check out everything in the library."

Over the years, John Robbins, host of this series and others like it, has perfected a seductive formula. In Williamsville, New York, Doreen Dell has scheduled his programs "to get kids into wanting to read

some of these books." The result? "More kids were stimulated to do something than were not," she noted. And third grade teacher Jan O'Connor of Washington Township, New Jersey, applauded Robbins's impact on her class, saying he "has never failed to grab their attention and hold it—they're, like, 'Ohhhh!' when he leaves the story hanging." Mary Beth Hinze, library media specialist at Griffith School, Phoenix, had much the same outcome with *Reading Rainbow*, recalling, "My little kids just want to read *Reading Rainbow* books. That's all they say."

Our year of interviews focused a recognition that from kindergarten to senior high, teachers have applied video astutely to sharpen interest in **language and literature**. "They like it, they certainly do," said Peggy Carr, of Conway, South Carolina, about *The Letter People*. She's shown that series to her 25 kindergartners at Pee Dee Elementary School. And she had a familiar postscript: "They look forward to it. They like the break from teachers." For her third graders in Oregon, Wisconsin, Fe Lou McElroy requested showings of *Storylords*—in her words, "an excellent program with lots of reading comprehen-



TVOntario's *Eureka!* uses animation and the voice of comedian Billy Van to help explore concepts in physics.



LeVar Burton is host of *Reading Rainbow*, produced by Lancit Media Productions, Ltd., a production of GPN (Nebraska ETV Network) and WNED-TV, Buffalo.

sion strategies." After a time, the youngsters were saying, "Do it like *Storylords*." They may not believe the series story line, said Mrs. McElroy, but, "They love it. It's just like TV at home. And they're willing to use the new tools and talk about them as a *Storylords* strategy. So what more can you ask?"

Meanwhile, video has also been a strongly supportive performer in narrowing a gap between high school students and literature. One student commented directly on that. Junior Dana Barrows of Oxford, New York, said, "Videotapes have helped me in the American Novel class a great deal because sometimes when I read there are things I don't pick out; and when I watch the video, I pick it up."

English teacher Lenora Snedeker has scheduled the BBC's tapes of Shakespearean plays for her high school classes in Oxford, New York. Along with viewing play segments, students read aloud in class and acted out parts. "They love it," she commented. "Once they get used to the Elizabethan language and no longer fear it, they begin to see the beauty and relax. Many of them find they really do enjoy Shakespeare." The moral of this, to her: "There really is nothing like the video revolution."

For instruction in **writing**, some teachers drew on formalized video sequences, while others made television work for them in more impromptu ways. When Andrea Mathis faced her second graders last fall at Cowpens Elementary, in South Carolina, she told them they would soon be writing a story every day and that by watching *The Word Shop* regularly, they'd learn to produce more interesting tales. In the weeks that followed, before viewing the program, she went over key words the children would hear on the tape—mystery, fantasy, tall tales, even onomatopoeia ("They were really excited about that!"). As the actual

program came on, they were eager to listen. Afterward, Mrs. Mathis cued the youngsters into "incorporating something we learned in our stories for the rest of the week."

"There really is nothing like the video revolution."

At the fourth grade level in Andover Township, New Jersey, Joyce Tompkins has settled on starting off her writing instruction in the fall with *The Write Channel*. It "goes along exactly with what I do in grammar and writing." Her approach has been to begin the morning with grammar instruction, phasing into a composition-editing session on the chalkboard. Then, in the afternoon, they watch the video. Her classes, she said, were "real happy" with *The Write Channel*, finding it "reassuring that what we've done in the morning, they're now seeing on television—the same kinds of corrections and improvements." Third-grade teacher Bette Priest made use of another series, *You Can Write Anything*, in her Arizona classes. "The kids were really into it," she remembers. And what impact did it have on their writing skills? "I saw an immense improvement from January to the end of the year," she reported.

What's in the News has sparked writing in a fifth grade room at the Clover Bank School, Hamburg, New York. Teacher Earl Skingley has capitalized on the series for eight years, making it "a big part" of his writing program. In his words, "It's a terrific chal-



The fantasy storyline of *Storylords* leads children to put reading skills to work.



Puppet R. B. Bugg, television reporter, gets help with his sentences from Red Green (Beverly Todd) on *The Write Channel*.

lenge to the fifth grade because it gives them something to get their teeth into, as far as writing goes." Last fall, that Clover Bank activity produced one of nine national winners in the *What's in the News* competition.

Moving to the high school level, several English teachers spoke of extracting "prewriting" stimulus from the TV tube. Delia McAuliffe of Buffalo (New York) Traditional High saw that it worked well to schedule *Moving Right Along*. "We'd watch how the elderly lady was treated," she explained, "then shut off the TV, talk about it, and get some examples to start them into writing." In a lot of ways, the series was a "great motivator for writing." Joanne Piper, tenth grade teacher, had the same goal in mind, but a rather different technique. For her classes at Westlake High, west of downtown Cleveland, she'd "bring in any program you can think of to give them an assignment," finding essay leads in perhaps the characterizations or plot lines.

Teachers we talked to had also turned to video series to help stimulate interest in mathematics. Never one to travel in slow gear, Arizonan Jim White had in mind introducing his second graders to geometry. So he turned to a block of programs which had served him well at other times—*Math Cycle I*. His comment: "I've used it for every concept throughout the year. When I introduced subtraction with regrouping, I used that. When I did money, I used that again."

One of California's mentor teachers, Marilea Hefernan, of Kohler Elementary, North Highlands, has had encouraging results in her sixth grade with *MeasureMetric*. She has scheduled one or another of its dozen units "to get going, and then I go to my lesson. They work out really well." And when she found that some students wanted to learn more, she showed them

the "more difficult" *MeasureMetric* programs "as closing sequences."

Math Works had its adherents, too. "A super math program," said Carol Johnson of Beloit, Wisconsin, because "they visualize things that kids have trouble visualizing." A colleague in Madison, Barb Widder, welcomed that series "because it puts children in real-life applications where they have to solve something. They first have to figure out what the problem is, what they know, what they need to know, and how do they go about solving it. I think this has massive impact on how they relate mathematics to their world." And the 28 units of *It Figures* have been "ideal," to New Jersey teacher Joyce Tompkins, of Andover Township. On a given day, its sequence might not coincide exactly with what her fourth graders were covering in math, but it's "either a good introduction or a good review."

For social studies, the program inventory that professionals described covered current events, history, geography, and studies of the culture of America and of other lands. California mentor teacher Ernie Hepworth brought in tapes on the duties of police, fire, and ambulance personnel, to beef up a unit on "Community Helpers." She had her class look at the video together and then, in smaller groups in her TV-equipped learning corner. For lessons on latitude and longitude, Joyce Wingate, of West Columbia, South Carolina, scheduled *Finding Our Way*, because this series made teaching the subject "a lot easier."

Late in the school year, Barb Widder has usually pulled in a resource like *The Blue and the Gray* for social studies in her fifth grade at Randall School, Madison, Wisconsin. Her procedure is set: Preview first, to spot what the children should look for, prepare them for several days prior to the actual show-



Earl Skingley's students watch co-hosts Katie O'Toole and Frank Wilson weekly on WPSX-TV's *What's in the News*.



Randolph measures a pizza to learn the metric system in *MeasureMetric*.



Houston learns about multiplication when his rabbits keep proliferating in *It Figures*.



John Rugg helps students acquire map and globe reading skills on WIT's *Finding Our Way*.



Host Louise McNamara takes viewers right out into the water in *Up Close & Natural*.



Japan's is one of three cultures compared in *Across Cultures*.



Tom Gee and John Overlan, directors, confer with Ginie Bachelier, anchor of the weekly news program *Assignment: The World*.

ing, and, afterward, review features like key characters and scene changes. Listening to the feedback, she's gathered that youngsters "love it because it's the first time that someone's talked realistically about what they see on TV." Using tools like this program, Ms. Widder tries to give her pupils "the big picture."

Meanwhile, for the entire year at Brookland Cayce High, in South Carolina, Martha Zion scheduled *Portrait of America* on a weekly basis in her civics classes. The series enabled her to give students "a good exposure to the culture of the United States that they're not used to."

For a comparison of America's ways with those of foreign lands, teachers in Arizona, Ohio, and Wisconsin have been presenting the thirteen 15-minute units of *Across Cultures*. In Phoenix, Gerry Ruehle drew on the series during his concentration on Japan, finding to his satisfaction that it led to "a lot of discussion." Ned Brown, of Strongsville, Ohio, dipped into the series for units that meshed with his social studies text, "picking and choosing the things that fit best in my situation." Beth Elver has preferred going with the entire series in her world geography classes in Oregon, Wisconsin; each of her four sections sees a program unit every week.

At Sherburne-Earlville Central School, in Sherburne, New York, Friday has been earmarked current events day. For five years now, social studies teacher Dave Bensley has shown *Assignment: The World* that day; this past school year, it was played for five sections of seventh and eighth graders. One of his underlying purposes: "It gives them current events in the medium that they're going to be getting it in as adults. You're teaching them to view TV news. I have kids who tell me they're watching the news at home and they never had before." Bensley has turned the weekly write-in topic of the series into an extra-credit option. In essays, students argue one side or the other of such questions as: "Should teachers be tested for drug use?" coming up with at least five reasons for their view.

In a time of increased concern over science education, teachers spoke as much about science-related video as any other block of programming. They seemed to value the series they used, often explaining that these programs did something for them that they could do only with difficulty.

Second grade teacher Joanne Simpson has found that *Up Close & Natural* has paved the way for special opportunities at her school in rural Oxford, New



Civics teacher Martha Zion discusses her weekly use of Raintree Publishers' *Portrait of America* with Robert D. B. Carlisle.

York. Program 12, "The Pond," is a highlight. While ponds hold no surprise for farm-reared children, chances are they have never looked closely at one. So, after viewing "The Pond," Mrs. Simpson has asked, "Does anyone have a pond that we can go visit?" In short order, the class is on a field trip, and she overhears children saying, "I didn't know all that was there." As a sequel, the youngsters start assembling a classroom pond-life aquarium, to watch frogs' eggs hatch.

Working with third and fourth graders, Ruth Gunderman, of Madison, Wisconsin, described an effective *Discovering* unit on how you tell if an organism is a fish. The program showed a number of fish, then described their similarities and differences. "That's the kind of thing I want kids to do in science," she explained. "It's very interestingly done."

Materials for All Grades

Our travels found that resources were existent for all school levels. Take the area of science as one example. In middle-school grades in four states we visited, *The Voyage of the Mimi* drew a high order of praise. The series was offered in good part because, in the words of science teacher Janet Reilly, of Williamsville, New York, it was "almost open-ended and interdisciplinary."

Seventh-grade teacher Lee Davis, of Beloit, Wisconsin, has made a practice of showing *WhatAbout* in the first weeks of school, "before we ever start the book." He'd schedule the second program "Hypo-

thesizing in Science?" to help students understand what a hypothesis is. And then they'd face "special activity and some written communication, so I'll understand they understand."

At the upper end of the grade spectrum, science teacher Don Yost, of Rancho Cordova, California, has shown *Atoms & Molecules* to his high school pupils—"as an introduction, because you can't do those demonstrations. They're beautifully done, and all single-concept. A lot of it is time-lapse photography, which you couldn't do in the classroom."

"They put you right on that boat.
You can feel the waves."

After a year's travels, you could comfortably infer that video was answering the needs of experienced teachers from beginning grades into senior high. And series were being scheduled in all subject areas.

Bonuses from Video

Apart from stimulating interest in learning about subject matter, video has backed up teachers in other ways as welcome as they may have been unexpected—by broadening the classroom experience for students, or helping them express their feelings. Programs have



These boys analyze marine life from a pond in *Discovering*, a series in science for elementary age students.



In *WhatAbout*, host Bob McDonald (right) visits the Epcot center to learn about hypothesizing from Henry Robitaille.

also given teachers illustrations they would be hard-put to duplicate, and have served as information resources for students. It was reassuring to hear, as well, that video turned some students on to learning.

Having access to *Up Close & Natural's* "The Pond" epitomized teachers' awareness that video could expand horizons—and learning—for youngsters. California mentor teacher Jewell McCoy, of Rocklin, reflected others when she remarked that series host Louise McNamara "actually walks out to a pond, and the children can see what she's talking about. You can't always take the children out to a pond."

In the same way, video could make you a seafarer on a sailing vessel. Arizona principal Calli Merrick marveled at *The Voyage of the Mimi*—"They put you right on that boat. You can feel the waves. You could get seasick!" Another body of video could help students feel like world travelers. Civics teacher Martha Zion added a related footnote on why she shows *Portrait of America* to her basic class in South Carolina—because "so few of them ever have the opportunity to travel. They know minimal things about their own state; they know nothing about the rest of the country."

As for giving students better insights about their feelings, video has proven of distinct value. Ohican Ned Brown concurred with other teachers, citing his practice of "fitting in" *Self Incorporated* during his sixth-grade classes. Units from that series have been useful "just for discussion purposes, to show (the students) that some things they're experiencing in their

lives are not unusual, that they're common for people their age."

It's well to come back to basics and recall that in the learning process, the student remains the ultimate beneficiary. And video, several interviews revealed, can help young people in gratifying ways as resource and as stimulus to learn more.

Allan Lindsley, a Class of '87 high school senior in Bloomer, Wisconsin, learned how a television tape could help him deal with an assignment. He headed a student group which had been given the green light to make a social studies presentation on AIDS. With that charge, Lindsley set out for the media center to talk to librarian Violet Raykovich. What materials did she have to give him some background? Mrs. Raykovich had a ready answer: A county nurse had brought in an AIDS film transferred to videocassette. That filled the bill. Lindsley signed out for the tape and went forward with the presentation.

At central-city Riverside High, in Buffalo, New York, the media center has come up with a similar system. The Holocaust tape supplied by a local TV station answered the questions of many sophomores writing a special paper this past spring.

Evidence from several communities showed that video can do something else: It can turn on students to learning. There was the vivid experience of middle schooler Colby Leonard in El Dorado Hills, California. Going into Rob McClurg's sixth grade, Colby had a clear-cut case of anti-science bias—and his family couldn't soften his resistance. But *The Voyage of*



Julie guiltily smokes without her parents' knowledge in "Trying Time," one of 15 programs in the series *Self Incorporated*.



Colby Leonard checks out the bioshelter he built, inspired by *The Voyage of the Mimi*.

the *Mimi* changed his course: Colby saw it and was hooked on building a biostation behind his family's house. Cranking up, he called New Alchemy outside Boston; they sent him a "whole bunch of stuff." He wangled a ride to Capital Nursery in Sacramento to get other pointers. And in time, he set to work.

Colby Leonard's dream turned into a plastic-enclosed station on his backyard sun deck at home. There he installed a 55-gallon drum with assorted bluegill swimming in it; the waste water went to nourish 15 plant species. He had created an ecosystem of his own. Last fall, Colby Leonard went off to junior high, where he earned an A+ in biology. And by then he had one clear goal. "When I'm 16," he said, "I'm going to be able to go on a ship like the *Mimi*. You can bet on that."

For Colby Leonard, a block of video materials proved something, and wound up making a big difference in his zest for learning. In disparate parts of the nation, teachers of many subjects in every grade have found that recorded series also proved a point: they could effectively reinforce instruction. At the same time, video also equipped some of these professionals to adjust to important change, as the next pages consider.

Expediting Change

"[The shipyard] asked what kind of background did I have. Being straight out of high school, I had no background, except the classes I had taken. That one class kind of fit what they were looking for. [It] probably just gave me a finer edge than somebody else."

Richard Charles, 19, an apprentice at the Newport News Shipbuilding Co., commenting on *Principles of Technology*.

Vocational and Technical Education

As the 1980s began, vocational and technical education was confronted by its greatest challenge in a quarter of a century. Times were changing in industry, and training in one specialty alone was no longer good enough. Employers wanted broader-gauge technicians who better understood technical concepts and principles behind modern equipment, job candidates who had received more rigorous academic preparation.

Principles of Technology was the educators' answer. This two-year course in applied science was constructed of 14 multimedia instructional units, 78 color video programs keyed in vital ways to the basic concepts, 104 lab exercises, and 52 demonstrations. With this substantial block of materials in hand, teachers across the country began three years ago to present a new, urgently needed curriculum.

Early this spring, five instructors talked about their experiences with *Principles of Technology*—what it had accomplished for them, as well as for

their students. Their comments were focused in a remark by 18-year teacher Jeff Snyder, of Columbia-Montour Vocational-Technical School, Bloomsburg, Pennsylvania. "It's the best thing I've seen come down the road in recent years."

Like so many others in his profession, Snyder has found that "it's tough to teach kids today. I don't know what you need to do to inspire them." In that respect alone, *P.T.* has helped in his classroom. "I see a lot of interest," he remarked. Using the video as a "quick preview," he has enabled students "to see some applications of a principle before you even start talking about it." And there's been an unexpected spin-off. In the past three years, he said, "I've had some fantastic discussions that I never dreamed I'd be able to have with a science class." What was the trigger? "I think the videos make the difference," he said.

In Ft. Wayne, Indiana, employers have asked the Regional Vocational School to send them job candidates with a background of more applied science and hands-on experience. In meeting this pressure, said industrial arts teacher Bill Thomas, *P.T.* has been "excellent," putting the school on "the cutting edge of what's taking place locally."

With 15 years in industry behind him, Richard Jones went into teaching 10 years ago, is now at the Uintah Basin Vo-Tech Center in Roosevelt, Utah. For him, TV "is the best medium I've found. Students relate to it, and they listen to it." Hence, Jones has made *P.T.*'s video his launching pad "to go into the materials in every section. [It] stimulates their interest and settles them for the upcoming lecture." His verdict: "To get something to use as a springboard every time makes our job a lot easier." As for his graduates, "they're better equipped to handle the world of work. We're getting good placement. That's the name of our game."

Charles Montgomery, a teacher for 23 years, works at Scarlet Oaks Vocational Center, Cincinnati, Ohio. In his experience, *P.T.* has done "a heck of a job. It's reaching the right people. I've had comments from students coming back saying, 'Boy, I'm glad I had that!'" Sometimes Montgomery has scheduled the video to introduce a section; sometimes he's applied it for review. Has it worked in those ways? "Quite definitely," he says.

Then there was teacher Robert D'Agostino, of Denbigh High, in Newport News, Virginia. Not long ago, it took two to three years for graduates to be productive "because they really didn't understand the basics of technology." Then came *Principles of Technology*. "It satisfies that need," he explained. The overall cluster of materials, he added, is "outstanding because it allows the average student to get into the world of physics from the applied side, where they actually experiment with industrial pieces of equipment." As for the video units: "I think they're

neat. In a very short time, they wrap up the entire objective."

At Denbigh High, Richard Charles took a year of *P.T.* with D'Agostino before graduating in June 1986. In the course, Charles faced new concepts (heat transference and the like), volt meters and other tools, math linked to technology, video showing how to apply equations, and, in labs, "hands-on experience—building it yourself." That intensive experience turned into a springboard to the apprentice program at the Newport News Shipbuilding Company and a shot at what apprentice Charles this spring called "the best welding school in the world." Putting in 10 hours a week in this school (his grade: 4.0), he spends the rest of his work days applying his new skills to the hull of the carrier *Abraham Lincoln*, due for launching in February 1988.

Over the past 15 years, instructional video developers have answered not only a need to strengthen science instruction for vocational students like Richard Charles but also a call for materials reflecting other, equally important changes in curriculum. To meet these urgencies, designers have generated a range of new video products—among them, program series on economics, thinking skills, and guidance toward emotional growth. These video elements have been produced to help teachers make their way confi-

dently across unfamiliar terrain. As an outcome, users have had higher rates of success in coping with curricular change that might otherwise have been unsettling.

Economics Education

In the mid-1970s, educators and video developers aimed their sights at one more national need: economic education of the young before their college years. The well-being of both individuals and society depended on making informed economic decisions. Yes, you could learn to do that casually as a child. But, said project planners, that process "can be expedited and enhanced through formal instruction." However, most teachers were "not prepared" to discuss the basic economic principles.

These considerations led to production of such video series as *Trade-offs* for intermediate and junior high grades and *Give & Take* for older students. This past fall at Dodge Elementary, in Williamsville, New York, teacher Doreen Dell shared her belief that the *Trade-offs* programs were "excellent"—they helped students "weigh the alternatives and make decisions about their own values and what purchases they will make." She found her youngsters relating to "the kids in the story because they are believable." And evidently her class fell into step with the story line. After



Principles of Technology includes scenes shot on board ship to teach students basic principle of physics and technology.



Aided by *Principles of Technology*, industrial arts teacher Bill Thomas can help students graduate well-qualified to fill jobs in local industry.

seeing the video, she explained, "They tell you, 'well, I would have. . .'" Then the talk would continue. That suited Mrs. Dell, who feels "there has to be discussion."

The sequel series, *Give & Take*, came along four years after *Trade-offs*. Among other places, the newer materials were being shown last year in Columbia, Missouri. Linda Scott, on the faculty of Columbia's West Junior High, had seen that in *Give & Take* more than one concept was being presented much of the time. As she did not want to "gloss over" those essentials, she made a practice of stopping the tape to discuss a point. Overall, she viewed the young actors and situations as "believable," and appreciated the fact that "such varied things are being shown that it keeps the children's interest." As teacher, Linda Scott concluded that her students were "learning the objectives much faster"; as critic, she considered that the creators of the series had done "an outstanding job."

Education in Thinking

A widespread conviction that children should have more of the skills "essential to learning" led in 1979 to completion of the 60-unit *ThinkAbout* series. Prior to then, materials suitable for supporting that curriculum were extremely scarce. Production of *ThinkAbout* gave educators a major resource for advancing the teaching of thinking and problem-solving.



An accident teaches students about scarcity and social decision making in a program from *Give & Take*.

Teachers visited over the past months offered comments about video produced in both these areas of need. Of *ThinkAbout*, Carol Johnson, of Beloit, Wisconsin, said, "It's the best program because it's across the curriculum, and because the video has all sorts of applications in the classroom, with extracurricular activities for kids outside the classroom." In her experience at the fifth- and sixth-grade levels, "every single program's worth watching." A hearty enthusiast about what video can do for her in school, Carol Johnson concluded, "Kids are lucky to have that series now."

"all sorts of applications in the classroom"

In Phoenix, Bev Wolf has put *ThinkAbout* to work in quite a different forum. She runs the so-called "Brill Street School" of the Phoenix Youth Evaluation and Treatment Centers; her teenaged students are classified as severely emotionally impaired. Mrs. Wolf described *ThinkAbout* as "one of my favorites." Where did it fit? "I've used it for science, social studies, math, for following directions and wherever I need something plugged in," she explained. At Brill



Malcolm thinks long and hard about how to spend his paycheck in "Malcolm Decides," a program from *Trade-offs*.

Street School, they have watched the series "constantly," because the programs "always cover something I need." Mentor teacher Rob McClurg, of El Dorado Hills, California, has played *ThinkAbout* units for a somewhat different reason. "It's the only way to get kids to research and to problem-solve things that are real," he advised.

Education for Emotional Growth

Before the 1970s, teachers could do little to help advance the emotional growth of their students. Professionals knew how important this area of education was, but virtually no materials existed as instructional resources. That dilemma was resolved in the 1970s with production of a new inventory of video series.

Along with the more substantive programming she schedules, Arizonan Bev Wolf has incorporated video strands that help her address some of the uneasiness in the minds of her emotionally handicapped pupils. For one, *On the Level* meshed with her routine because it "dealt with a lot of maturing issues, which is basically why these kids are here." In a word, "we really did like that," she said. *Moving Right Along* complemented her program, too. The video's high school environment touched her students, all of whom "think they're in high school (and) identify with the kids in the program." Further than that, the issues explored in *Moving Right Along*

"homed right in to what we're doing at the school."

At James F. Byrnes High, Duncan, South Carolina, the family-problem classes taught by Jean Taylor have been exposed to the series *Parenting*. More often than not, the class has wound up with what she calls "a very good discussion." Another South Carolinian, Joyce Wingate, working with fifth graders in West Columbia, has welcomed her chances to show *Powerhouse*, recognizing that emphasis on the basics has pushed the affective "further and further under the rug." She particularly liked a unit on the handicapped. Her Springdale Elementary School has had a handicapped class, and some children, she found, were "feeling nervous about the wheelchairs" they saw. The *Powerhouse* program showed that "the handicapped are people and have the same fears and dreams as anyone else." That day, the video turned into "a springboard for a really good discussion on handicaps."

Video: Life Raft in Need

At another West Columbia school, Northside Middle, only a few classrooms on the first floor separate the bustling media center from the math and computer spaces assigned to teacher Barbara Orr. Not so many months ago, Mrs. Orr made that trip somewhat more briskly than usual. In the media room, she brought her plight to Dr. Linda Hayes, librarian and media specialist.



Flash hopes to persuade a new coach to put him on the team by recording praises from a former coach on *ThinkAbout*.



Tyrone's father opposes his son's saxophone in "Who Am I," a program from *On the Level*.

"I'm desperate," said Mrs. Orr, an uncommon admission for someone teaching for 29 years. She quickly explained her dilemma: "I'm to teach a new course in computer literacy. But the new computer room isn't ready yet, and the books haven't arrived. I have nothing interesting to show. Can we find something?"

Dr. Hayes, an energetic link in the school's media chain, searched through her papers and came up with a possibility: a video course titled *Computerbreak*. In short order, she arranged to have a sample tape fed to her media center from the district's distribution point. Mrs. Orr liked what she saw and asked to have the entire series taped for showing at her convenience on a portable VCR in her classroom. And so, for the first nine weeks of her course, *Computerbreak* formed the backbone of her presentation. Mrs. Orr's judgment some months later: "The video is a lifesaver. It shows things that I just haven't learned. I can talk and talk about it, but if they can see it, it's a great help."

The Los Angeles Unified School District's station, KLCS, used instructional broadcasts to resolve a different kind of problem. There was a time when some people were teaching math in the district without having been math majors. In response, KLCS produced the 94-unit *Video Math*. It was designed, according to instructional coordinator Dr. Patricia Marshall, so that a teacher could use the series every other day in class. Then, on alternate days, the

teacher would further develop what students had learned from the video.

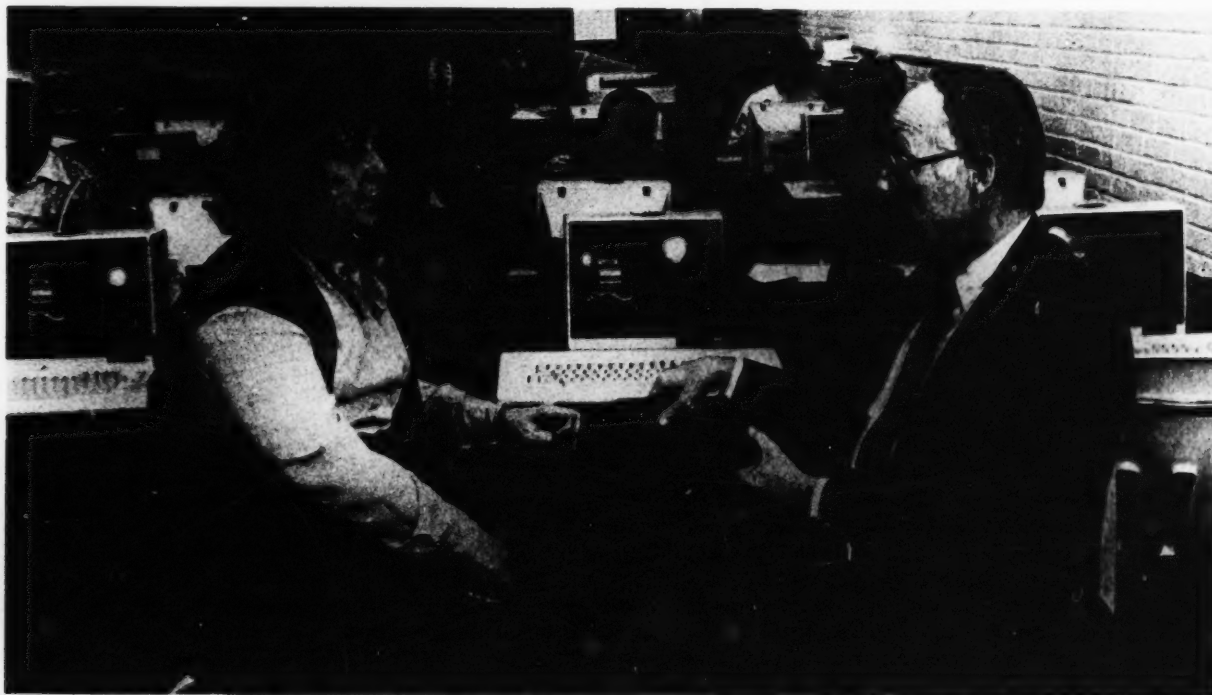
On balance, then, video has performed in crucial ways to trigger curricular change and help teaching professionals bring their classroom techniques more in step with the times. Video has done something else. It has heightened the access of many students to education. On the following pages, we'll meet some of those learners and their teachers.

Improving Access to Education

It's just like a normal classroom after a year and a half. Maybe it's even a little more interesting because you have this novelty. I feel it doesn't hinder my learning at all, and we're way ahead of where we're supposed to be.

Ben Heller, freshman, Pleasantville High School, Pleasantville, New York

Ben Heller was talking about an experience that qualifies as an exception to high school practices: taking a language course through "distance learning"—two-way interactive televised instruction. He was in his second year of Latin via the "two-way." This activity, by now wholly routine at Pleasantville High and cooperating Ossining High, represented only one of ten different avenues to equal educational opportunity opened up by ITV or video, avenues encountered in this project's interviewing.



Barbara Orr tells Robert Carlisle how *Computerbreak* helped her students acquire computer literacy skills.

Distance learning was born when some schools saw they were too small to offer students a full range of courses; they could not justify the salaries of professionals to teach, say, advanced-placement subjects, or calculus, or Russian. Taking advantage of improved technology, they could set up TV linkages between schools to restore pupils' access to those course possibilities. Junior Dee Dee Angst of Arcadia High and dozens of other students in Western Wisconsin got their chance to study Spanish because their schools, mostly in Trempealeau County, had banded together. Administrators agreed to use channels of a new cable TV cooperative, sharing in paying the two-way teachers' salaries. For Dee Dee, the experience has been "a little more interesting" than regular classroom instruction. "It keeps your attention," she said. "It's different. It's new."

For Arcadia High Spanish teacher Jane Bautch, presenting her subject on the two-way has become "second nature." Thinking back, she explained, "It hasn't worked too badly this year, mainly because more people want to take foreign language. So I can say to students, 'Listen, if you don't want to meet my requirements, then you'll have to leave.' They're all pretty good students, and they behave pretty well." She pointed to one crucial prerequisite and one difficulty. It is essential, she believes, for two-way students to be "highly motivated." As for the obstacle, it has to do with scheduling. No participating school lightly surrenders its autonomy over deciding class times.

These comments would be very familiar to DL participants at two high schools in Westchester County, New York, which have bridged the eight miles between them with two-way TV/audio (and a courier in a vehicle to take paper work back and forth). Superintendents Jack Humphrey, of Ossining, and Dr. Frank Gray, of Pleasantville, decided several years ago to share Latin instruction. In the spring of 1987, teacher Anthony Fiorella, stationed at Ossining High, taught his students face to face and those at Pleasantville High via a cable company's community access channels. Latin I and II pupils in Pleasantville saw and heard the Ossining classroom; it, in turn, could watch and listen to the Pleasantville Latin scholars.

Michael R. Kolesar, media coordinator for Pleasantville, boiled down the rationale. "Those kids of ours are taking Latin," he said, "and they would never have had that opportunity, if it weren't for the technology we have." For teacher Fiorella, it meant a slightly different teaching method, as he described it:

You don't go off the topic as much as you would in an ordinary class. You don't crack corny jokes, either. You stick more to the subject and therefore cover more material. It's a little more formal than a regular class. The only frustration is this constant, 'Do you hear me?'

Meanwhile, Pleasantville's principal Dr. Donald Antonecchia foresees further efforts to use DL to equalize educational opportunities. "We're looking at broadening the number of courses and number of schools that can be involved," he said. "Now people are knocking down the door to get in."

At different places in the nation, a number of boys and girls with **different handicaps** were watching video last spring as part of their studies. The TV materials were intended to help bring them closer to educational parity with their peers.

At Belleville Middle School, Orangeburg, South Carolina, Janice Toto and Mark Robinson have separate, self-contained classrooms of young people with handicaps. This spring, Mrs. Toto taught 16 educable mentally handicapped students with ability levels ranging from kindergarten through fourth grade range. Robinson worked with seven emotionally handicapped youngsters from seventh and eighth grades. In both rooms, video shared some of the professional's load.

Mrs. Toto scheduled programs for up to two hours a week, "mainly as reinforcement." Without question her pupils liked video "because they like visual things. They can remember things better when they see them on TV." Characteristically, EMH children do not retain information as well as others, so Janice Toto developed a routine of reteaching a lot, and that, she says, is "when (video) comes in handy." To be realistic about it, she knows her youngsters can at best achieve up to fifth grade, but she aims high.



Dee Dee Angst enjoys learning Spanish in a Distant Learning classroom, while teacher Jane Bautch monitors her classes at other schools.

"My main goal," she said, "is to get these kids up at least two grade levels below where they should be."

Beyond any other video, Mark Robinson's EH students enjoyed *The Nature Scene*; they watched it daily. A newcomer at Belleville Middle, he was a touch hesitant about taking the young people out of the classroom as much as he would like. That was where *The Nature Scene* came in very handy—because it "really takes us outdoors while being inside." Other series worked well, too. "I was amazed at their attentiveness," he said, in viewing *Gettin' To Know Me*, with its account of the life of a contemporary black family. "They seemed to be enlightened by it," he recalled.

"They can remember things better when they see them on TV."

Another video route to improving skills of the learning disabled has been tried at Riverside High, in Buffalo. Generally speaking, library media specialist Arlene Behan said, these teenagers function well in regular classes, if they can be shored up by having extra time with a resource teacher. One of these professionals asked Mrs. Behan for help on improving the note-taking of the LD students. Mrs. Behan prescribed *Eureka*, not for its potent scientific content, but for its pointers on writing notes. "It worked beautifully," Arlene Behan remembered, "because all the principles we talked about in note-taking were exhibited so well in each of those brief segments."

Installing TV sets and VCRs in schools has given teachers tools to help students with various educational deficits. What, then, if a pupil happens to miss a class when a unit of video is shown? Two schools have come up with a remedy. In the media center of James F. Byrnes High, in South Carolina, media specialist Judy Parham has VCRs primarily to tape incoming video and then play it back on the house distribution system. But the recorders can also work for more individualized purposes. Teacher Jean Taylor explained the system now in place:

When a student is out and misses a program, he can come to the library with a slip from me, and Mrs. Parham will make sure a VCR is set up for him to watch during the time that he's free to come in. It does not take my time, and he doesn't miss the material.

Barb Winans, media specialist at Rock Bridge High, in Columbia, Missouri, has the same system in place. About half of the school's 64 teachers schedule video in class, and there's always a likelihood that some pupil will miss out. The student then reports to Ms. Winans, who can assign one of Rock Bridge's six VCRs to meet his request for a viewing. When it

comes to such individual uses, says the district's media center director Dr. Curt Fuchs, they have tended to be "more make-up than anything else." This fall, he'll be urging library representatives in the 22-building district to push for more independent applications of VCRs—for research as well as make-up.

Education Outside School

I like *Discovering*. They show about plants and the food chain, and I like that. *Terra, Our World*: I really liked that one. Then *American Scrapbook*: I really enjoy those. And *Wordsmith*.

Cyndi Wright, 15, Cottonwood, Arizona.

Limited to a wheelchair at home, Cyndi Wright spent several months this spring viewing the daily transmissions of ASSET's ITV programs over KAET, Tempe. She hoped that by watching as many as 20 programs a week and discussing them with visiting tutor Virginia Brown, she'd qualify to enter high school this August. Cyndi tires easily, so it was a tough assignment for her, but she put all her spirit into it. Said Mrs. Brown, "She's real motivated, she's very eager."

Meanwhile, juveniles in detention made up another group for whom video helped improve access to education. These juveniles were being held for one to four months at a county center in Bisbee, Arizona. For the youngsters—some are no more than 9 or 10—confinement comes as a tremendous shock. Hence, says Cochise County project coordinator Dr. Karen Newman, providing "some school activities and school work ends up being a very positive influence for them." In late 1986, the center started taping ASSET's daily telecasts and holding the programs in a cassette library. Trained volunteers would help put the materials to work.

For some of the young people, tapes from *Moving Right Along*, *On the Level*, *Self Incorporated*, and other series were played back daily, more for guidance than for academic reasons. Concluded Dr. Newman, "I have found that the opportunity to look and respond to something that is, at least temporarily, removed from them, and then allowing them a more personal discussion is good." The center's program was working well enough this spring to warrant talk of expanding into vocational and career topics.

Aid to Home Schools

Home schools have sprouted on the education landscape throughout the nation. Four of them, reached in the course of this year-long study, reported turning over part of the parents' instructional load to ITV and video.

Two of these schools have been set up in farm-area homes in central California; a third is on the south side of Phoenix, and the fourth has been functioning in Madison, Wisconsin. All four have VCRs,

or have easy access to one, but each home has approached video in its own way. By adding it, the parents have given their children the "bonus" of educational materials being shown to youngsters in many surrounding schools.

Linda Maher's Homestead School, in Ceres, California, and the Hardys', in Phoenix, have been in operation for three years. The Mahers have been educating their 8-year-old daughter Danielle, and have used ITV live (from KVIE) rather than taping it, partly because, as Mrs. Maher conceded, "I haven't been organized enough to decide when to record something." Even so, she has shown a number of programs to her daughter, everything from *All About You* and *Book Bird* to *Teletales* and *Wordsmith*. Most of the time, the broadcast instruction has worked well. Says Mrs. Maher, "I like to expose her to different literature, and we don't always have time to run to the library to get all of the different books. If we watch something and everybody likes it, then we'll choose to do more research on it." As her children grow older, Mrs. Maher expects to use more video.

At the Hardys' home, video takes the stage about two days a week. Finding ASSET's broadcast materials "a very valuable tool for visual learning," Mrs. Hardy has put her year-old VCR to the task of building a library of video series. Her five children, it might be noted, have not been the only ones to profit. The series *Finding Our Way* has "just been terrific," Mrs. Hardy commented. "I've learned a tremendous amount through it." Science and history tapes have already been helpful on the 10-acre farm in Acampo, California, where Janice Allison has been schooling her 13-year-old daughter.

a range of programs as wide as her interests

In Madison, Wisconsin, work schedules of Martha and Ulrich Henes have enabled them to put in half a day each as instructors for their 7-year-old, Sarah. The parents have kept a curriculum pattern in mind, to be sure Sarah stays roughly at a level with other second graders. But her day has been "pretty much self-directed," says Mr. Henes. "If you feel like first working on a model airplane, we'll do that. Then you can write a story or work on the computer." (They have a Macintosh with speech processor.) And video has also had a niche in the daily schedule. From 1 to 2 P.M., Sarah has viewed a range of programs as wide as her interests; later, the TV set has been turned on again for *Square One* ("She never misses that," says her father). While Sarah's looking at programs, Mr.

Henes stands by as "more of a reference person. Frequently, watching TV will inspire her to draw something or do a project. Then I'll help her get the things she needs to do it."

Independent Home Study

The education of many other people has been jeopardized by innumerable factors. Perhaps they may be working full time, or have a baby to care for, or are hospitalized or home sick; then, too, their load in school may be top-heavy, making it impossible to take a desired course. How can these young women and men be given greater access to learning? Once again, ITV and video have come forward as attractive alternatives.

KLCS, Channel 58, in Los Angeles, has put together an enviable set of options for students who cannot fit into a traditional mold. For the seventh summer, the station has been offering back-to-back televised courses in driver education and career guidance for 10th graders. They could view programs between 8 and 10 A.M., or pick up a repeat between 3 and 5 P.M. This is not for anyone dreaming that life's a beach. Said KLCS instructional coordinator Dr. Pat Marshall, "It's much more difficult to take this course than to take it in a classroom. There has to be constant motivation to make them keep up with their work." But for 15-year-olds yearning to get a California driver's license at 16, the lure of the open road may be strong enough to outmuscle the quest for present pleasures.

For students sick at home or in the hospital, KLCS turned out 94 episodes of *Video Math* (ninth grade level). For those puzzled by the demands of teacher or content, the station also devised its afternoon *Homework Hotline*, with tutors and teachers standing by to take live phone calls for help. But this summer the L.A. school district's broadcasters targeted possibly their largest number of constituents. These were the men, women, and children among 40,000 unable to get into English-as-a-second-language courses given this past year by area adult schools. With its Monday-through-Thursday broadcasts, KLCS offered "survival" terms and expressions, to hold the line until home viewers could enroll for more formal ESL instruction. This project surely qualifies as a textbook example of how to exploit TV to equalize educational opportunities.

When Doris Wagner began her teaching career in 1950, the first coast-to-coast TV program (in it, Harry Truman would convene the San Francisco-based conference on a peace treaty with Japan) was still a year away. Six years ago, Mrs. Wagner decided to use ITV to complement her teaching of first grade in Colfax, Wisconsin. By this time, she's accustomed to incorporating as many as three programs a day.

How did she feel about video? "It's a real plus," she said. Was it simply giving her a break? "No," she

replied. "If it were, it wouldn't be used. I think it's (video's) being upgraded all the time. I especially like the one from Slim Goodbody with the heart. That's beautiful. That's the best one there is. The kids are fascinated."

Listening to field comments of teachers like Doris Wagner, one deduces that, with the equipment in place, finding video programming of good quality no longer is a pervasive problem. Often the shelves of public TV stations, media centers, and school li-

braries have been stocked with timely materials that fit the entire spectrum of grades from kindergarten through the senior year in high school.

One question remains. Is a good **support system** in place to ensure that desirable programming reaches American teachers and is used by them to enhance classroom learning? Our year's worth of interviews pointed to the absolute necessity of such support. Its nature merits exploration in the next chapter.

The Crucial Element: Strong Support

Dave Bensley has taught social studies long enough—20 years, in fact—to deserve high grades. Now chairman of that department at Sherburne-Earlville Central School, Sherburne, New York, he has been described by a neighboring educational administrator in one word: “superb!”

Bensley's put in the kind of school time you need to gain some perspective. He has developed a habit of using 150 to 200 video units a year in his classes; the programs are transmitted to his 24-inch monitor over a cable from the media center downstairs. If he wanted to stop a tape to discuss a point, he'd have to call the center on his wall phone. Even so, the system has served him effectively, and Dave Bensley knows exactly why. As he explained:

The reason this arrangement works so well in this building is because of the woman running it down there. She's Diane Marvin. If you want something done, you ask Diane and it will be done. If you don't have an individual who wants to put the time and energy into it, it isn't going to work. That's all there is to it.

Bensley pointed squarely at the most fragile part of the troika of elements on which video use depends. By now, the first of them, equipment, is in fairly good supply, and if more teachers want more of it, it's there to be bought. As for programming of quality, that's largely available, as well; if classrooms call for more, added copies can be duplicated.

But the matter of **support**—putting enough human resources into helping teachers make the most of the video that's out there for them—that is some-

thing else. Challenged to hold the line on costs, districts have shied away from loading more duties on personnel, or adding staff. Strengthening the ways and means of utilization has wound up with a low priority.

Yet, the linkage of support between program development, distribution, and classroom use has to outrank equipment and program availability in importance. Dave Bensley emphasized his point, saying, “Without a person like Diane, I don't see how a system like this could work.” Very probably it wouldn't, and the tapes, no matter how good, would gather dust on the shelf.

There's another consideration that weighs even heavier against video: the pressures on today's teachers. Mary Lou Hamill, the knowledgeable and energetic assistant education director of New Jersey Network's School Services, crystallized the problem this way: “Teacher are up to their ears in paperwork and discipline and teaching to the text, and this is just one more thing that they have not had an opportunity to internalize into their teaching system. They really need the opportunity to see how this could help them get where they are going, rather than seeing it as an aggravation.”

Without question, human linkages are essential—to show teachers where and how video might help them get where they want to go, to run a building's system of program distribution, to keep information flowing freely to the ultimate user, the classroom professional. Happily, bridge-builders who fit that mold are out there, and the interviewing of 1986 and early

1987 introduced us to some of them. They, in turn, contributed to a clearer understanding of how such people can help convert a trial run with classroom video into a durable and valid habit.

Key Roles in the Support System

Out of conversations with administrators, traveling video advocates and teachers came a picture of the functions that an ideal support system should perform. Only a superstar could handle all these tasks alone without flaw. What is far more likely is that individuals and agencies on various levels will collaborate on guiding and encouraging the teaching professional in exploiting video as a valuable teaching tool.

These were the primary roles of the optimum support system, in the eyes of experienced practitioners:

It makes equipment and programming available. Eight years ago, when Tom Kennedy started working

for the Board of Education in Beloit, Wisconsin, the school system had two VCRs. By June 1987, Kennedy, now supervisor of libraries and media, had 80 VCR/TVs in place to serve 400 teachers and a population of 6,700 students. By fall, another 35 units would be on hand. And Tom Kennedy's buying won't stop there. His goal: to have one VCR/TV for every two elementary school teachers and two units for each secondary-school department. By Christmas, libraries in five of 16 school sites will be outfitted with VCRs assigned to playbacks for pupils absent when video's been in use.

Tom Kennedy was not the only high-achiever we met on the interview trail. In Columbia, Missouri, the director of media services, Dr. Curt Fuchs, energized a VCR-purchasing program with the vital support of Associate Superintendent of Instruction Dr. John Stolt. That was three years ago. Today, that 23-building district has almost 100 VCRs at work.

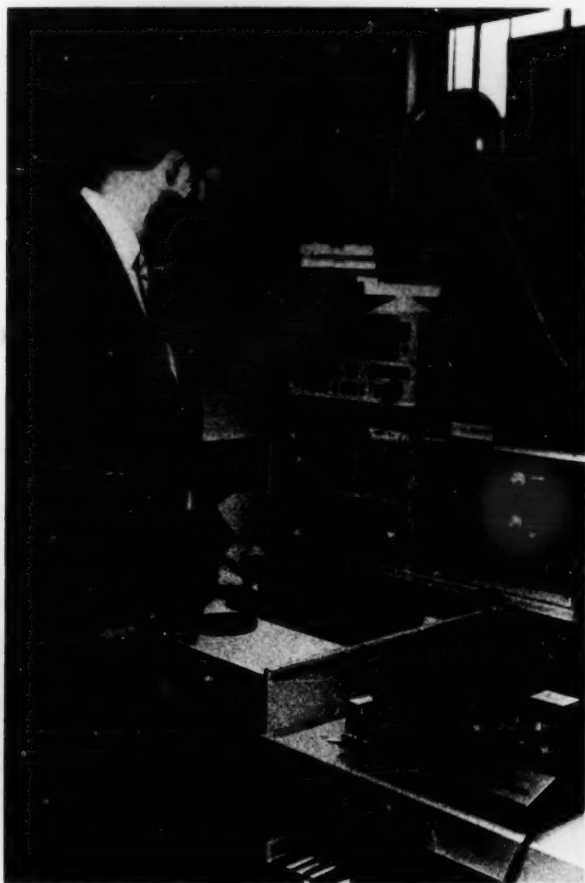
Linda Burrard splits her time at the elementary school in San Andreas, California, as teacher and



Dr. Curt Fuchs, director of media services, stands between the shelves of videocassettes that support his district's instructional program.

assistant principal. Her grant request produced a paradise for confirmed users: a VCR and TV monitor in each of 14 teaching spaces; a cable company conveys the KQED ITV signal to the building. In Strongsville, Ohio, video comes to requesting classrooms from a control center in the basement of the Board of Education's home. There, Director of Cable Operations John Bedford has installed six playback VCRs (along with two recorders) to feed programs to users over any of eight cable channels. All a teacher has to do to schedule a tape showing is dial 260 on the phone.

So, equipment—or a means of providing a video signal—has come into use through an assortment of means. Of the systems we saw, South Carolina's, with roots as far back as 1958, stands in the front rank. The Office of Instructional Technology in the Department of Education has intricately massed options to bring ITV to 93 percent of the 1,060 schools in the state. Two open-circuit networks serve elementary schools; and progress is well-advanced on installing ITFS sys-



Cable operations director John Bedford sends out a video program to a teacher who has requested it.

tems and tape-equipped distribution centers to reach secondary schools. Nine out of 10 schools have VCRs. This year, the total in place was 2,165, up 22 percent from the year before.

The equipment, of course, would stand mute and useless without a ready supply of *programming*, and here again, a number of avenues—ways of making program units easily available—were mapped for us. In Arizona, ASSET transmits more than two hours of instruction daily over the two public TV stations in the state. Wisconsin users benefit from having eight transmitters and stations broadcasting almost identical instructional programs in every part of the state. KQED's ITV reaches schools in 40 Northern and Central California counties, cooperating with KVIE/Sacramento and KMTF/Fresno. For some ten weeks of the school year, WNED nourishes its Buffalo-area Video Library Project by transmitting after midnight to timer-driven, school-housed VCRs.

Given an ample supply of programming, this would seem to be the first rule: be aggressive about pushing its availability. Curt Fuchs, of Columbia, Missouri, distilled the essence of that, saying, "I think people respect me for what I do here. They know I'll bust my bottom to get anything to them that I can."

The support system provides program information. It could come from an enthusiastic teacher next door. Said Beloit's Carol Johnson, "Some teachers honestly have no idea that there are any good programs on. They'll sometimes come and ask me, and I'll tell them about it." To keep up-to-date, she regularly scans the program guide for what's going to be shown.

But Wisconsin has more formal means of bringing video to the attention of classroom professionals. One device is the four-page newsheet *Interconnect*, published nine months of the year by the Educational Communications Board's Educative Services Division. The May 1987 issue led off with a piece headlined: "Budding ITV Series Emerge in 1987-88." This briefly described 14 new series, and then, in a postscript, cited 10 series being dropped from the Wisconsin Public Television Network's fall schedule.

Ask Beloit life science teacher Lee Davis how he gets to know about what programs are upcoming and he replies:

We rely on the *Interconnect*; that gives a calendar of when all these things are shown so that you can preview. A lot of information from there. Some of it from the IMC in our building. They give us leads on things.

Like Wisconsin's Educational Communications Board, San Francisco public TV station KQED also publishes a news and information brochure, *Vision*. Put out three times a year, *Vision* this spring bannered a piece on "ITV and the Reading Initiative." KQED's mailing list covers 40 counties in Northern and Central California. But *Vision* does not carry the

whole burden. Spreading the word also falls to people like Martha Mills, KQED's area director for the Valley Mountain Region. Among her tasks: Seeing that enough information gets to the county directors of educational technology services. Then it's up to people like Jim Fryer, director for Alameda County, to send schools a flyer listing all the series they can expect to see on KQED.

The more conduits, the better, one gathers. South Carolina's Office of Instructional Technology fields six utilization consultants as range-riding information-bearers. One of them, Audrey B. Eddy, averages 25,000 miles of driving a year to cover her five counties bordering Georgia and North Carolina. Among her points of contact at more than 230 schools is Mrs. Judy Parham, librarian at James F. Byrnes

High, in Duncan. Mrs. Parham adds to the information flow. "I send the teachers notes," she explains. "And I have a memo that goes to all of them each week. I'll highlight different things that might be pertinent." And Mrs. Parham always hopes to benefit from "any word of mouth" among her associates on the faculty.

Teacher Jim White, of Cave Creek, Arizona, the ASSET trainer in his district, does what he can to bridge information gaps and encourage video use. "I am trying to learn these programs myself," he said, "and then send them out to individual teachers who I think might use them."

There's a further dimension to this process of information exchange: suggesting to teachers where video might be integrated with their curriculum. Linda Coutts, math coordinator for the Columbia, Missouri, district, invested parts of two summers in screening as many as 75 elementary-level math tapes—"every last second of them," she adds. Then, she explained, "I took that information and correlated it to our program—where it would fit best—so



Wisconsin's Educative Services Division gets the word out to teachers about video possibilities.



"Range rider" Cathie Johnson leaves one of the many schools she visits to conduct in-service workshops on television and video resources.

that teachers would not have to figure out whether something fits and where." The next step? "I wrote a blurb about each unit," she said, "so they would have some idea what they were ordering."

The support system offers in-service training. A few months back, Pat Miller, ASSET's director, set out on the 130-mile drive to Flagstaff, Arizona, to do an experimental in-service session for a widespread district of some 20 building sites. Her associate, Addie Kinsinger, went along; so did three of the 12 teachers they have recruited to be ASSET trainers. At 3:15 that day, the whole district had faculty meetings, and the ASSET visit was the agenda. Ms. Miller conducted a workshop for high school teachers, Addie Kinsinger concentrated on middle school professionals, and their colleagues handled geographically separate sessions for elementary teachers.

"We got an initial orientation in-service for the whole district at once," recalls Ms. Miller. "It worked beautifully."

In-servicing like this has gotten to be crucial among the steps that make up the teacher-support process. Our interview circuit showed that in many places, this activity is routine.

Over the past three years, whenever one of the 23

school buildings of Columbia, Missouri, was about to begin video usage, director of media services Curt Fuchs would pick up the phone and call his primary ITV source, KCPT, Kansas City. Station ITV personnel were quick to accept his invitation to join him for an in-service workshop. Said Fuchs, "They come out whenever I want them to. Whenever we start ITV in a building, they come and give a presentation."

At WVIZ, Cleveland, six part-timers, all former teachers, traverse the station's region to enrich utilization at area schools. Said Tom Valenti, WVIZ's director of educational services, "They visit; they help the school get over the hump of knowing what the print material is and how to use it; they explain how to get teacher guides; and they do in-service workshops and faculty orientations." Beyond that, WVIZ also designs several major workshops a year, pinpointing a topic like reading and showing how to use video and perhaps other media to teach that subject.

In Wisconsin, taking video to the teacher falls in large measure to half a dozen directors of Regional Service Units, spread throughout the state. The RSU representative for a big chunk of southern Wisconsin is Cathie F. Johnson, a former teacher at both elementary and secondary levels and more recently certi-



Teacher Nancy Stockwell helps fellow teachers develop workshops to introduce *Math Works*, a new video series on fifth grade mathematics.

fied as a curriculum director. Trekking across a territory of some 91 school districts, she sees her main goal as staff development and in-service, helping to make teachers and administrators "aware of instructional television resources and how and where to use them in the curriculum."

It has taken Mrs. Johnson some time to convince her contacts that she is "not just the TV lady." Gradually, they have come to see her colleagues and her as "credible curricular resources." Last fall, she received a high accolade from Beloit's supervisor of libraries and media, Tom Kennedy. She had been asked to help a new staff member set goals for an instructional media center serving two schools. Said Kennedy to Mrs. Johnson, "You're really part of our instructional team."

"a total media approach to education"

The support system encourages video activity. Anna McHale, supervisor of math and reading in Park Ridge, New Jersey, made no bones about the importance of top-level support to video use in a school. "If you don't have administrative encouragement," she said flatly, "it would never happen. If I said *Reading Rainbow*, and the principal said 'No *Reading Rainbow*,' it would be no *Reading Rainbow*."*

Fortunately, many administrators *do* give video applications a boost, and some of them were on our interviewing itinerary over the past year.

Roland Cross, recently retired as assistant superintendent of schools in Oregon, Wisconsin, was excited about the prospects of using ITV when it first materialized in the 1950s. That interest persisted. His experience over several decades led him last fall to sum things up this way: "Administrative encouragement is absolutely necessary. You have to have an administrative staff that is tuned in to the values that can be gotten from ITV." To get results, he went on, it's essential to "do a good job in staff development on utilizing the media." If that's accomplished, "you will end up with something that enhances your curriculum considerably."

A district leaning toward video would be fortunate to have a Roland Cross manning the tiller. And, to hear Curt Fuchs, the Columbia, Missouri, district benefited tremendously when Dr. John Stolt came on board as associate superintendent of instruction. "The best thing to come to Columbia since sliced

bread," said Dr. Fuchs. "He has been extremely supportive. He has moved us along." As a clear result, every day Fuchs's media center trucks out to the schools an average of 100 tapes.

For his part, Dr. Stolt offered a quiet affirmation of video in the classroom:

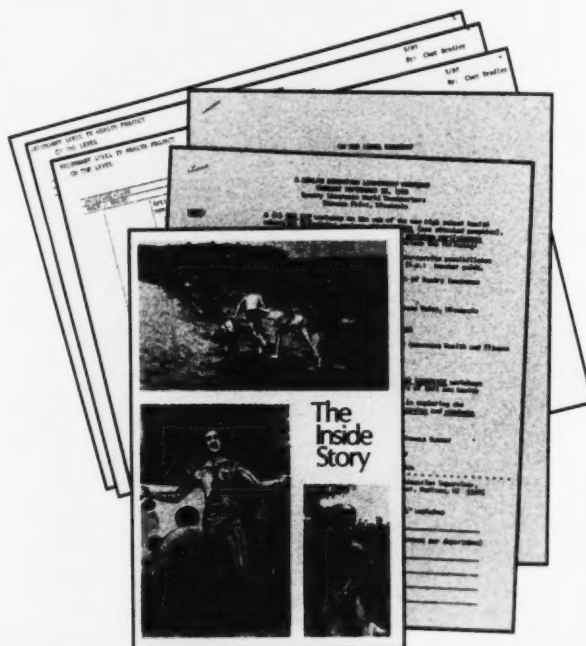
The crucial point that must be made to teachers and administrators is that (video) is indigenous to good instruction, but only one of the tools teachers use. They ought to have a repertoire of things to use to teach youngsters better.

TV has a natural gripping attraction for people. You're already in a medium that people know about. They like it. Kids like it, and if you choose properly and judiciously, it's just another tool that we can use in education. So that's how we sell it.

Give that imprimatur to someone like Curt Fuchs and it is small wonder that Columbia schools have gone forward so quickly in embracing video as a valuable part of instruction.

At the building level, New Jersey's James Hoffman, principal for little more than a year at Ironia Elementary, Randolph Township, is "always looking for new tools to further enhance classroom education." He added, "Because we're trying to bring about a total media approach to education, these video programs are excellent—as long as they're used with a unit of study."

As for Dick Koontz in Avondale, Arizona, most teachers in his district surely know exactly where he



Cathie Johnson makes use of materials like these when she conducts her workshops.

*Sources for this and all video programming mentioned in the text will be found in Appendix B.

stands. Koontz is not only principal of the Lattie Coor School but also district coordinator for ASSET. As the latter, he tapes, edits, and distributes programs to all four of Avondale's elementary-system schools. Koontz recognizes that video is "just another form of teaching." But he also knows that "today's generation is tuned in to TV," so he feels "very positive" that video is being used in the classroom. Whether it is actually scheduled is "teachers' option," and yet, of his 20 professionals, he reports, "I've never had anyone turn it down." Last fall, all 20 were using video "correctly" on an average of three times a week. Sometimes he's made specific recommendations.



Doreen Dell receives her UTIE award for a project using *Storybound* to motivate students to read.



After receiving her UTIE award, Catherine House and her class toured WNED/WNEQ-TV and participated in a promotional for *3-2-1 Contact*.

Fifth-grade teachers are aware that he wants them to show *Inside/Out* "because it fits into their curriculum and what fifth graders do, like joking and bullying." Dick Koontz has underscored that suggestion by giving each of those teachers a copy of the *Inside/Out* study guide.

Of course, a well-publicized award can do the trick, too. Catherine House, of Ransomville, New York, learned that in a very pleasant way: In 1985-86, she won the first-place Western New York "Utilization of Television In Education" award for creative exploitation of *3-2-1-Contact* in her third-grade class. "We received a tremendous amount of publicity in the area," she recalled. Her superintendent and principal both went to the awards luncheon, the Board of Education formally recognized the citation, each third-grader received a letter from the superintendent and the principal, and they wrote Ms. House, too. "That made a marked difference in the district," she said.

In the ideal, then, these four functions—providing equipment and programming, information, inservicing, and hearty encouragement—must be performed by the support system, if hope is to be held out for effective use of video. That support can stem from a number of different entities and individuals. As any practitioner knows well, they are to be found at various levels in education and public media. Those levels merit definition at this point.

The Strata of Support Systems

At our school, I like instructional TV. I probably start out sooner than anybody else trying to see what I can work in. And I encourage people to see what it's all about. Once they see a program or two, they really like it.

Gerry Ruehle, sixth grade teacher
Manzaneda School, Phoenix, Arizona

In the course of our year's tour and talks, we heard about at least nine levels of support, one of them the invaluable kind modeled by a teacher like Gerry Ruehle. There are more levels than nine, for certain: The network of supportive entities that has matured over 25 years is intricate and complex. But all nine share a commitment to the idea that for teachers to use video well, there have to be open pipelines feeding them materials, information, know-how, and approval.

It is not our role here to judge these entities. Nevertheless, in scouting for patterns of effective video use, we were bound to turn up clues on why applications did succeed. Assembling those clues, you wind up with a general hierarchy of support systems. Not every one of them has to be in place, of course, if video is to be a worthwhile classroom tool. But *some* support mechanisms and helpful individuals *must* be nearby, or the prognosis is gloomy.

These were the levels of support that took on definition during our field visits:

Support from Statewide Systems

- **The Arizona format**—ASSET, or Arizona School Services Through Educational Technology—was conceived largely by KAET's assistant general manager, Lee C. Frischknecht, a veteran public broadcaster, after doing a needs assessment in the Tempe-Phoenix area. He and Addie Kinsinger designed a demonstration project in 1983-84. The results were encouraging enough to warrant incorporating ASSET in 1984 as a nonprofit corporation with its own board of directors.

The formula was this: ASSET would buy rights to instructional programs, enabling member-schools to record off-air, build a video library, and hold the programming as long as (a) they remained members, and (b) ASSET kept the programs in its lineup. The agency also bought time from KAET and KUAT for daily, school-season broadcasts of ITV units; in all, 87 series were transmitted this past school year.

Growth has been steady. When director Pat Miller arrived in 1985, ASSET had on its books 24 school districts with 80,000 students. This past year, almost 100 of Arizona's 215 districts belonged. Member-districts were educating 215,000 of the state's 540,000 students; the most common fee: \$1 a student per year.

Now that the ITV signal penetrates almost the whole state, Pat Miller and her associate, Mrs. Kinsinger, have a lot of turf to cover. To help them, they have recruited 12 teacher trainers,—like Jim White, of Cave Creek. But Pat Miller and Addie Kinsinger will still do orientations and initial in-servicing.



Pat Miller, director of ASSET, reaches for a program in the service's large video library.

ASSET, then, represents one format where state-level "management" goes right to the schoolhouse door to "sell" the service. To hear Director Miller, it has not yet reached its outer limits. She intends to devote more time to seeking funds from the private sector and also to "heavy advocacy" in the Legislature. ASSET may only be three years old, but people already speak of it as if it were a living organism.

- **In New Jersey**, the New Jersey Network (NJN) blankets almost the entire state through its four transmitters, sending out programming for kindergarten through twelfth grade from 9 A.M. to 3 P.M. on school days. Recent figures report that more than 42,000 of the state's teachers use ITV (out of some 75,000) and there has been a gratifying 20 percent increase in use of secondary-level manuals over a three-year period.

Director of Educational Services Walter Freas and his associates present an assortment of services to the schools. "Project Tape" makes them program copies largely at cost. A newsletter and evaluation forms go out. More than a dozen times a year, NJN people attend education conventions in the state, times when, as assistant education director Mary Lou Hamill puts it, "we have to be assertive salespeople. You make sure that you hand out a lot of paper." As for holding workshops, "We offer to do them like crazy," says Mrs. Hamill, "using our print material and newsletter, and whenever we're at conventions." At times, it can be discouraging. ITV, says Mary Lou Hamill, "seems to be a new concept every time we work with a group of people. They didn't know it was there."

But NJN's feed is used. Librarian Anita Lockwood routinely sets the VCR timer in her media center at Ironia Elementary, Randolph Township, so that 12 times a week the recorder can pick up NJN programs. And the network has backed up its transmissions by sending Mrs. Lockwood the complete range of teachers' guides.

At the New Jersey Network, outreach is all-important—is a way of life, in fact. It has been institutionalized, as well, in South Carolina.

- Fast approaching its 30th anniversary, the South Carolina instructional television enterprise could write the book on ITV distribution and how you *have* to flex with the times. If gaps remain in its coverage—and they are slight—the Office of Instructional Technology keeps on narrowing them down.

Statistics tell some of the state's story. ITV there is used by 44 percent of the teachers in 93 percent of the schools for 77 percent of the students, according to Robert W. Reese, chief supervisor, utilization. To underscore the growth, 676 schools made use of ITV in 1969-70; in 1985-86, 1,031 schools put the signal into their classrooms. In that earlier year, 165,463 students and 5,524 teachers took advantage of ITV offerings; by 1985-86, 16,496 teachers, facing a total of

464,586 pupils, worked video into their lesson plans. These days, though, growth comes in small increments—maybe 1 or 2 percent a year. "We have a mature system," explains Reese.

Clyde H. Green heads the Department of Education's Office of Instructional Technology, and now has more than 27 years in the profession. In his time, South Carolina has created a matrix of means encompassing open-circuit broadcasts, ITFS systems (they are replacing far-costlier closed-circuit layouts), 14 VCR-stocked distribution centers (with more to come), and assorted repeaters. This past school year, "ITV" pumped out 193 instructional series to the farthest corners of the state.

In Clyde Green's view, a strong ITV program has to have two ingredients: good programming and "an active utilization program." His office now fields six people whose "daily business it is to call on administrators and decision-makers, to work with teachers in keeping them informed about what we're doing, and to look seriously at the interface between what we do and what the curriculum objectives are."

As mature as the state system may be, and as far-reaching, Clyde Green confesses that he is "still bewildered" to find people in the state "who hardly know anything more than that there is ITV and there is ETV (ITV's companion public broadcasting agency). What is the remedy? "Better training of teachers before they ever put their foot outside the university and into the classroom," he states,

adding that he "firmly believes that television hasn't yet been discovered." Perhaps so, but *some* discoveries can be reported. Pee Dee Elementary is a school of 250 children in rural Conway, 10 miles west of Myrtle Beach. Kindergarten teacher Peggy Carr builds her schedule around a weekly showing of *The Letter People*. It clearly reinforces what she teaches. As for her 25 children, "they look forward to it."

• Just as South Carolina's ITV headquarters in Columbia has built bridges into most school districts, so has the **State of Wisconsin's** Educational Communications Board. Through five transmitters, three independent but associated public TV stations, and various translators, Wisconsin now delivers ITV programming to the entire state; one way or another—by live broadcasts, cable, tape, or ITFS—100 percent of the land mass is covered.

To keep information and support flowing, ECB has set up a division of educative services, headed by Ronald Unmacht, as manager, school services. His office issues *Interconnect*; it also produces a weekly half-hour tape called *Wavelengths Special*, usually hosted by Unmacht and offered as one form of teacher in-servicing over the TV network at 3:30 P.M. Fridays.

Unmacht can and does tour the state on divisional missions. But he has regional support troops to help him. Wisconsin has divided itself into a dozen Cooperative Educational Service Agencies (CESAs); then, six Regional Service Unit directors, paid for by area



Wisconsin's Educational Communications Board provides ample information about its extensive programming services.

clusters of school districts, wheel around the school-to-school circuit so vital to optimum support of video usage. They in-service and run workshops for teachers of all grade levels, and for colleges, and universities. "They are our link" to the schools, says Unmacht. When an RSU representative needs an expert for a workshop, she can call on the TV network, or the Department of Public Instruction, or the universities. But often she's fully qualified to serve also as content expert.

All in all, a typical region could have as many as 200 individuals within it as links with the final point of use, the classroom. Unmacht knits some of these people into a year-long process for choosing which video series to put in the ITV schedule. As part of his liaison duties, Unmacht will log 16,000 road miles a year. But that travel won't produce one-on-one school contacts. For them, he relies on the six RSU directors.

Support from Public Television Stations

Our field itinerary put us in touch with three public TV stations with solid, sizable commitments to ITV. This means more than merely transmitting a signal. It also means sustaining those extra services so vital to ensuring that the signal is not simply lost in the stars.

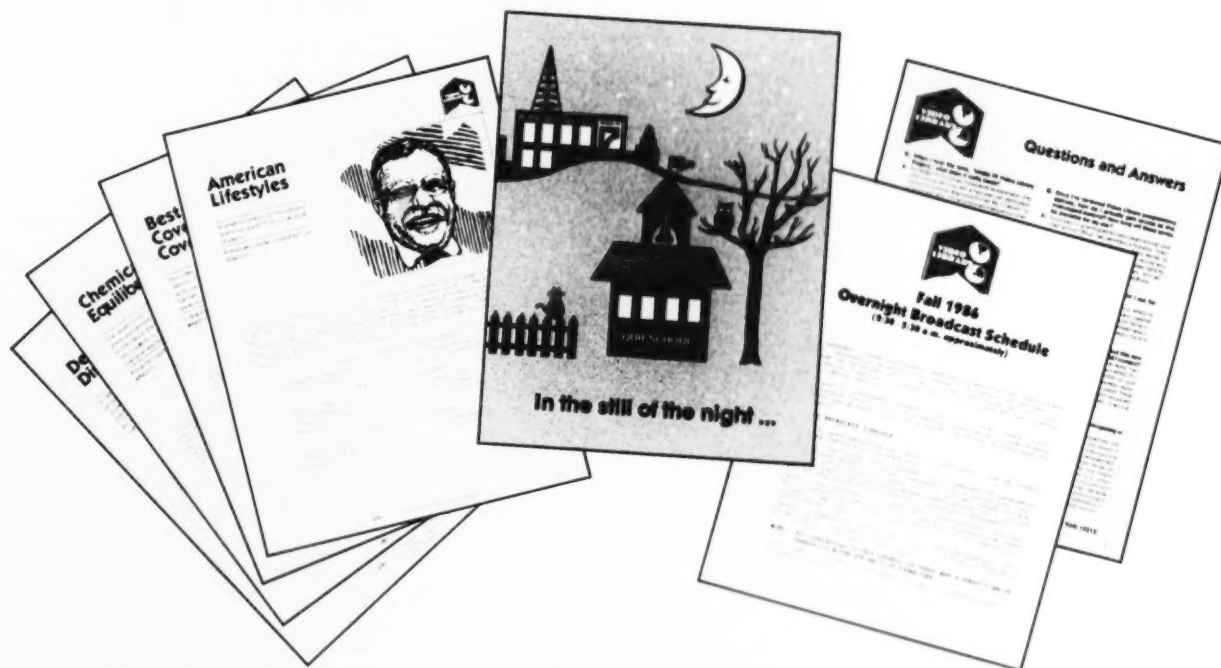
- **KQED** long ago set out to bring ITV to much of California's northern and central counties, 40 in all, an awesome stretch of land with 40,000 teachers and 1.4 million students. In season, the station's sig-

nal carries 80 series, its reach broadened by the transmitters of KVIE, Sacramento, and KMTF, Fresno. Along with this broadcast service, KQED authorizes schools to tape and hold video, offers support materials and teacher's manuals to users, puts on free staff workshops, and guides teachers on how to key programs to curriculum objectives.

KQED's representative in the Mountain Valley Region, Martha Mills, meets with all county media directors to "determine what types of service they would like to use me for. I meet the district ITV representatives through the county meeting, and the rep and I will plan activities for their district." The main question she poses: What workshops do the counties want for the year? Among the possibilities is a session on "training of trainers." Districts send representatives to these to relearn about setting up VCRs and using technology in the classroom. Says Martha Mills, "That helps us utilize our manpower a little more efficiently." There is no imaginable way in which KQED's half-dozen traveling ITV hands could do it all without such linkages.

- **Buffalo's WNED-TV** retains the core of its traditional daytime telecasts of ITV, mainly for elementary grades and for preschoolers at home. But overnight transmissions of the Video Library Project have stolen the thunder of the daytime service.

Just four years old this fall, the project has added a dynamic feature to regional ITV, capitalizing on the advantages of the VCR. Many schools jumped at



Buffalo's WNED-TV broadcasts all night, so that schools can have programming all day.

the station's initial offer to help pay for VCRs; at a recent count, 445 school buildings in eight counties had a total of more than 950 recorders. With timers set, these units have been picking up WNED's post-midnight ITV broadcasts; some teachers program their home VCRs to record items for their use in class, but this overnight delivery system has mainly served school buildings as their chief means of stocking and updating a video library. The first year, 1984-85, WNED transmitted 68 series for school stockpiling; this past year, 85 series were televised during the dark of night.

At the same time, the Buffalo station has recruited a support network of people. Wherever a project-related VCR was installed, WNED asked to have a video library liaison person designated. Because some schools nominated more than one, upwards of 500 individuals represent the project in their respective schools. And the station has yet another linkage arrangement: its program-selecting General Assembly of some 135 teachers, administrators, and others.

All these people can heighten school consciousness about ITV. And so can the "Utie"—Utilization of Television In Education—awards sponsored by the public TV stations of New York State. Doreen Dell in Williamsville won a Western New York Utie for applying *Storybound* to help motivate fourth and fifth graders to read Newbery Award books. Linda Haist and Janet Reilly capitalized on *The Voyage of the Mimi* so well with a class of gifted and talented in

Williamsville that they too received a Western New York Utie. And in Hamburg, Earl Skingley, an inveterate user of *What's In the News*, earned the judges' citation for regularly choosing a rotating pair of fifth graders to scheme up good program-related questions for the class. When a teacher receives a regional award such as this, it's enough to make any community proud. And each time the event is celebrated, video's banner is hoisted once again.

• **At WVIZ, Cleveland**, ITV qualifies as the cake, while, in Tom Valenti's words, primetime series like *Masterpiece Theatre* are strictly "the icing on the cake." Therefore, the many ways that station has gone about augmenting and spreading its instructional services should be no surprise.

WVIZ's school service arena encompasses 30,000 teachers and 460,000 students in 950 school buildings. "The sense we get," said Valenti, "is that well over 60 percent of the teachers are using television at one time or another in the course of the school year." And in this era of the VCR, the station hopes to wean the schools away from dependence on live daytime transmissions. Says Valenti, "We're trying to push them to build their own library of tapes."

But WVIZ has other items on its ITV menu—ITFS channels for schools, hospitals, and other educational purposes; a videotape library; a tape-duplicating service turning out about 18,000 copies a year; and, of course, the channel's field force of utilization experts.



Cleveland students watch *The Reading Rainbow* on ITV broadcast by WVIZ.

Then, more recently, WVIZ concocted Curriculum Connection, a computer database accessible to teachers who want to search out an appropriate video program by topic, grade level, key word, or subject heading. The idea was born in a meeting of WVIZ's strong advisory council; this past winter, the database already contained 2,200 ITV titles, and 100 teachers and others had been trained to access the system. In February 1987, the Corporation for Public Broadcasting funded an expansion of this service. WVIZ was given the green light to install customized Curriculum Connections in eight sites across the country (WCET, Cincinnati; ASSET; Kentucky Educational Television; Wisconsin Public Television Network; Washington Department of Education; WNED-TV; KENW-TV, Eastern New Mexico University; and WSKG-TV, Binghamton). It is one more way of making life easier for the video-using teacher. But training is vital. "We're not even giving out the phone number to people," said Valenti, "unless they've gone through a two-hour seminar at the station."

Support from Regions of States

Inside the borders of a state, support stems from more local enterprises, bridge-builders between state and national bodies and individual schools. The apparatus, our interviews indicated, operates within a region or a county. It might function from a fixed base, receiving, distributing, and retrieving materials. Or it might ride entirely on the shoulders of one person who covers all the educational bases in the territory. Either way, no one has a lock on the franchise. There is more than enough for many to do to ensure peak video uses.

- **In New York State**, the "BOCES" units—Boards of Cooperative Educational Services—share in the regional action. The 40 BOCES now in place are funded by the school districts they serve, with periodic dollar supplements from the state.

The Delaware-Chenango BOCES, headquartered in Norwich, works for 18 districts in two counties, with 1,600 teachers in 42 buildings. The director of its Instructional Support Services, Robert Taylor, explains, "We are here primarily to respond to requests of the school districts, and to do our best to meet their needs." They may want a workshop; the unit conducts a few, will be expanding them this fall to share information with the districts on the newer technologies. Schools may also request tapes. This BOCES has 4,000 titles on its shelves and a truck that each week visits each building in its orbit.

The Delaware-Chenango BOCES aims to simplify teacher access to its cassettes by issuing a catalog, with updates dispatched during the year. In the summer, each IMC collects the BOCES catalogs from its teachers, strips out old pages, and replaces them with more-current ones. "Once you get used to the catalog," said Dave Bensley of nearby Sherburne, "it's

very easy." Looking it over in late spring, he can fill out request cards for the next school year in scarcely two hours.

- **California** has seen fit to divide itself into seven ITV regions. But counties plow the ITV furrow, as well. A representative of Glenn County was among our contacts last fall in the Sacramento area.

This particular county has scarcely 4,000 students in its 10 school districts. Because it is small, much of the ITV load falls on Jim Eby, media center coordinator for the county superintendent of schools. Whatever in-servicing is done, he is likely to do it. It was his estimate that "over half" the county's classrooms were using video series or single-title materials. "Total use this past full school year," he reported, "was at least twice what it was five years ago."

"I could really be a teacher, as well as the hotshot lady from the TV station."

- **South Carolina's 14 distribution centers**, run cooperatively by local school districts and the central Office of Instructional Technology, tailor their outreach efforts to fit the needs of districts they serve. Typically, the Lexington County District Two center, in West Columbia, houses one of the state's ITFS systems, feeding instructional programming to the schools in its coverage area. Drucilla Reeves, coordinator of media services there and an activist, describes herself as "a pusher of television in the classroom." In her job, she listens to a hatful of media tales, but fits in a goodly measure of advocacy, perhaps arguing for getting the right equipment in a school. "You're not meeting your teachers' needs with your in-school system," she'll tell school personnel, "because you have too much demand. We can only do so much over here. Why not buy some inexpensive VCRs and truck them around to classes?" Drucie Reeves stands ready to work with the nearby media specialists and teachers "in any way we can," with one aim: increasing the effectiveness of ITV use.

- In various regions of states, you may also find a **company of support troops** spending much of their weekday lives on the open road. They come as close as any other individuals to doing all the basic functions—providing programming, technical assistance, information, in-service guidance, and encouragement.

Wisconsin's Regional Service Unit directors were destined to operate field ministries as experts on applying video to learning. Their units are supported entirely by school districts, through a regional Cooperative Educational Service Agency. The RSU director

in the La Crosse region, Judy Aakre, works for some 40 schools, and also coordinates distance learning in Trempealeau County as director of the nine-school "Project Circuit." Her counterpart to the south, Cathie Johnson, has 99 school districts in her region, bringing staff development and in-servicing to them. The Wisconsin production *Storylords* had an in-service component called "Teaching Reading Comprehension." Mrs. Johnson scheduled a three-hour how-to workshop which drew about 60 people from 40 districts. "Many of them were aware of the series," she recalled, "but were not exactly sure what to do with it." Her major goal: "to go beyond awareness into the arena of quality utilization, to give school people something they could take back with them and say, 'I can do my own thing with this.'"

A third of Wisconsin's RSU directors, Roberta Kuchta, navigates through the roads of her region from Elmwood, near Eau Claire. Her "customer" base: 74 school districts. She has taken her "Teacher For a Day" role-modeling demonstration to some 400 schools both in Wisconsin and, on a prior job, in Minnesota. As time-consuming as that process may be, she has reaped genuine benefits, such as "getting a little bit of credibility with teachers that I could really be a teacher, as well as the hotshot lady from the TV station." The process has also given her "a feel" for how students of different ages respond to programs, and has helped show teachers that they could use a series "tomorrow, without a lot of extra preparation."

Support from District Superintendent's Offices

"We've got support from the top to the bottom." This was how the backing for the distance learning project in Westchester County, New York, was characterized by Mike Kolesar, coordinator of media for the schools of Pleasantville, New York.

Critically, the decision to undertake a DL program in the teaching of Latin had top-level endorsement in the two school districts of Ossining and Pleasantville. Superintendents Jack Humphrey, of Ossining, and Dr. Frank Gray, of Pleasantville, gave it their blessing, and the elements of instruction by two-way video and audio began to fall in place.

"Any kind of program has to have some kind of truly strong push from the top," said Dr. John Stolt,

whose measured but material encouragement as associate superintendent of instruction has made video in Columbia, Missouri, such a reality in so short a period of time.

Dr. Stolt gave Columbia's ITV system the support it had to have. He urged his district to get good equipment and to set up in-service training for the teachers. But he also urged caution: "If you're not careful and are overzealous about selling ITV, that may very well be the death knell for it. You start out in a very slow fashion. Don't oversell it. Make it available, in-service it, monitor it. And keep it in perspective." Wise words about a system which has put 100 VCRs into its schools in little more than three years.

Support from Curriculum Coordinators

It happens that the school system of Columbia also offers proof of how important the curriculum coordinator can be in helping increase video utilization. Two in particular outlined their practices—Becky Quinn, kindergarten through twelfth grade science coordinator, and Linda Coutts, coordinator for elementary math.

For her part, Linda Coutts had previewed virtually every math cassette she could get her hands on, then correlated them with Columbia's math curriculum. To fifth grade teacher Jack Jensen, her descriptive blurbs linking video units to his math text were "very handy." That was one clue proving her contention that once a correlation has been done, teachers would use the video.

A year or so ago, Becky Quinn set her own course. She showed short segments of science tapes to new teachers, suggesting ways they could make the video work for them. She then started to package the TV units in kits, along with an explanatory booklet; a teacher could check out a whole cluster.

In Minnesota, Dr. Carl Knutson held the post of supervisor of physical education, health, and recreational safety for the Department of Education. Workshopping figured as a large part of his procedures. The year *Inside/Out* went into circulation, he organized a series of "very well-attended" conferences for teachers and elementary-school principals; as many as 1,000 came to the dozen regional programs.

Visiting 90 percent of Minnesota's schools at least once, Carl Knutson made a point of trying to urge them "to get away from the textbook approach, which is really a deadly way to motivate kids to be concerned about their health." And he beat the drum for the open-ended series, which put students "in a position to interact and discuss the situation and make some decisions based on the information in the tape." Frankly, it helped to be the Department of Education's man on the range. "I think that school administrators and teachers paid attention," he said, "to something being advocated by the department."



RSU director Roberta Kuchta visits 74 Wisconsin school districts to give demonstrations on using video in teaching.

Support from Principals

Each week at Aridondo School, Tempe, Arizona, a memo goes to the staff from the principal, **Calli Merrick**. "It would not be uncommon," she explained, "for me to comment, 'There's a great ASSET program which may supplement your program in math. Why don't you try using it?'" Or if she knows a teacher is doing a unit on oceanography, she'll point to *The Voyage of the Mimi*.

"Hey, this is *not* a passive medium!"

Calli Merrick's outlook is this: "I see myself as the instructional leader in whether or not ASSET is successful. I do promote it. I believe in it. It's great!" As the education leader, she recognizes that it is her obligation to maintain a continual flow of information to her teachers—"to let them know what's available and how it can be used." Someone *has* to keep talking it up, "because there's so much for teachers to choose from." At Aridondo School, that "someone" is the principal, who believes she must be supportive, "or otherwise it's going to be put on a shelf and forgotten. ITV is an excellent way to supplement what's being studied—not supplant it, but supplement it."

Dr. Thomas Smith preached a parallel view at his Springdale Elementary School, in West Columbia, South Carolina. To him, "ITV and videos enhance learning, and the single product a school has is learning. So it's worth the money we put into it—more than worth the money." Suppose the formation of rivers is to be covered in a class. "I couldn't do that without instructional television," he says. "When the cameraman goes out and films it from a mile high and puts it on TV, then it becomes very vivid to the children. It's the next best thing to having that experience themselves. Bring in instructional television and you can maximize learning."

Dr. Smith knows it may take all of three years of guidance to get a teacher using video at maximum efficiency. "But if they stay in the profession for 30 years," he adds, "it's worth it."

Support from District Media Coordinators

For individuals in this slot, the name of the game is delivering. Beloit's Tom Kennedy, the district coordinator, knows after eight years on the job that teachers won't give you much more than a second chance to answer a request. If you miss a deadline once, he comments, "I would take that as a teacher, but the next time it was missed, I'd say, 'I'm looking for an alternative.'"

Coordinators like Kennedy, New Jersey's Dick Jessup, Curt Fuchs of Missouri, and John Bedford in

Strongsville, Ohio, have grown to be seasoned and weathered producers in the zone between educational media land and that single room where 25 boys and girls are being taught. Our interviews highlighted these hallmarks of the proficient coordinator: being a resourceful problem-solver, knowing the local educational marketplace, and having enough skills with people to build alliances. One other essential, they say, is achieving an effective level of stature in the district. Jessup explained:

I discovered early on that I should have at least a coordinatorship level so that I could be in on all meetings. Luckily, my boss agreed with me, so I have at least equal status with the others, and I am able to go to departmental meetings.

The astute district coordinator adopts a practice of doing whatever is necessary to make life as easy as possible for the video-user. Having access to a 24-hour-a-day cable system linked to his school buildings, John Bedford, of Strongsville, Ohio, says, "We can play programs for the teacher to watch early in the morning, on his break, in the afternoon—whenever he needs it." At the same time, his office



Principal Thomas Smith, substitute teaching a fifth grade class, enhances his teaching with video programming.

annually customizes booklets for each teacher wanting one; the pages list programs that fit the dimensions of the individual teacher's curriculum. In 1986, half of Strongsville's teachers requested these booklets. Many who did not already had one from the year before.

A conversation with Dr. Fuchs of Columbia, Missouri, could be converted into a handbook on what the supportive coordinator should do. These are sample lines:

- "If I spot something at a conference, I immediately send for a preview copy. I get that to the coordinators, and then I get feedback from them."

- "I need to get out there to the schools, and as I give faculty presentations, I can throw in those punches and say, 'Hey, this is *not* a passive medium!' and go from there. We have to give it in small doses because you won't want the teachers to feel they don't know what they're doing."

- "I've given a lot of workshops in the last few years. The most successful are ones where teachers teach other teachers, rather than bringing in outsiders."

Principal Liz Schmitz of Columbia's Midway Elementary School got specific about what it was like to have a heads-up district media center. Said Dr. Schmitz, "The number one factor has been accessibility of tapes—a teacher's getting a tape whenever she wants it. There's no extra burden on them. No hassle, other than to preview it and work it into her materials. They don't have to go to 6,000 in-service sessions. It's all organized, catalogued, available—and it's in your best interest." It would seem that in Columbia, Missouri, the local support system has good health and a full tank of energy.

Support from Building Media Specialists

Dr. Linda Hayes, librarian and media specialist at Northside Middle School, West Columbia, South Carolina, is very frank about it. She works at the desk "of a desperate woman—I have so much to keep up with!"

South Carolina utilization consultant Audrey Eddy, who's seen many a building media specialist in her day, would be among the first to agree that they face a heavy load. Her experience tells her that "a



Robert Carlisle interviews Linda Hayes, South Carolina media coordinator.

librarian has to be a very resourceful person to serve a big school."

Linda Hayes has certainly shown what resourcefulness means. Hers is a ponderous laundry list of obligations. In her bailiwick, she handles ITV, computers, films, and reference materials. She hunts up usable programs for teachers, arranges incoming feeds from the nearby distribution center, juggles assignments for seven VCRs, puts out schedules well ahead for teachers to request a VCR, and keeps on her toes to make sure the district office transmits to Northside precisely at desired times—"so the programs will be shown when my teachers want them." Beyond all that, she plays the heavy in keeping the VCRs from being used for recreation, because "we're here for learning."

Go to any video-equipped media center and chances are you'll find the building coordinator—or, if you prefer, library media specialist—just as mired in assignments and, on bad days, getting perilously close to being overwhelmed. If this species is endangered for long, then the best uses of video in that building is liable to be in jeopardy.

"Sales and Service": That should be the sign hanging on the school library door. April Hoffman, the IMC coordinator at the Randall School, Madison, Wisconsin, came right to the point. "I see myself mainly as sort of a salesperson," she said.

Some prefer the soft sell. Principal Tom Smith in West Columbia, South Carolina, said his media coordinator, Kathy Mims, will simply say to faculty at a meeting, "Here are the new shows. Come see me later if you're interested." That approach, said Dr. Smith, "is enough to whet the appetite."

Others are convinced they have to be more aggressive. Every teacher at Griffith School, Phoenix, receives a video catalog. "Then I try to push it personally," reports Mary Beth Hinze, media center director. She uses her in-service sessions to "really work on the teachers, to make them aware of what we have. They need to see how it's used." But there's a service angle in Mrs. Hinze's method. She's acutely aware of time pressures on her faculty; she knows, too, that it can take time to roll through a multi-unit cassette to locate one program. So, she does that chore for them. "If they want a specific one," she says, "I'll find it for them. If they'll use it, I'll find it."

Media rep Mark Banks, of the Starpoint school district, Niagara County, New York, believes in personal contact with his teachers, "off the cuff at lunch, in the corridor, in the faculty room. They'll remember that more than anything they've seen in their mailbox."

At Riverside High, in Buffalo, Arlene Behan does much the same. "If I go to the faculty lunchroom," she explains, "I come back with notes on napkins. 'Send me whatever you have on . . . ' or 'Let me know what's available in the area of . . .'" She appeals to the

teachers to "tell me what your particular need is, and I'll try to come up with the materials."

Media specialist Pat Powell, at West Junior High, Columbia, Missouri, knows it's her job to "persuade people and suggest, 'Yes, there is something that can help you. Have you heard about the series. . .?'" Teacher and media coordinator Delia McAuliffe of Buffalo Traditional High would add this nuance: "I think it has to be done on a one-to-one basis for it really to fly."

At Madison Avenue School, in Irvington, New Jersey, teachers in the past had their apprehensions about media equipment, and as recently as four years ago, the school chalked up almost no video use at all. Then John Cilli came on board as library media specialist. He set up workshops to show teachers how to run the equipment. And he started drum-beating. "I have to do a lot of it," he said. "You have to know how to present AV instructional materials to the teacher so they are properly used with the subject they're teaching and at the right grade level. Otherwise, it's gone." This past year, at least a third of the classroom professionals there were scheduling video.

In the course of our travels, we talked to perhaps two dozen media coordinators. Most of them could say a lot to their peers about heightening video usage. But none would be any more persuasive than June Johnson, librarian at Old Farmers Road School, Washington Township, New Jersey (she has an added certification as educational media specialist). She brings to bear on her job a blend of experience (10 years at that school), commitment to proper media use—"I never buy anything unless it fits a particular purpose in the programs of the school," diplomacy,



Arlene Behan accepts a returned videocassette from one of the many teachers in her school who rely on her to provide video programming.

and persistence. It took her a time, but she finally convinced the assistant superintendent to okay a district-wide in-service workshop on video; the setup called for seven screening stations, rental of additional VCRs, and stacks of teachers' guides. The reaction from the district's teachers? The superintendent, she says, "got a lot of positive feedback. They thought the day was profitably spent."

When people tell June Johnson "I have so much to do already—I don't have the time," she's ready for them. "I keep pounding away at this," she says, "because it would take little effort on their part. I tell them whenever the library is open, they're more than welcome to come take a look at one of the programs they're interested in." She offers to put in "tape after tape" for them, adding, "I am sure that if you use it, you would find that the children would benefit from it, and you would, too." Old Farmers Road School has a faculty of 45. This past year, more than a third of them used video.

Support from Teachers

As vital as the building media specialist is in linking a school's teachers with a reservoir of usable video, the most persuasive advocate has to be a fellow teacher. This means one professional talking to others who are members of the same lodge. Sometimes the persuasion comes about in a formal context, a teacher-to-teacher workshop; other times, it may just be that an enthusiast shares the good news with colleagues. Either way, because of the source, the message will get a thoughtful hearing.

ASSET's teacher-trainer in Cave Creek, Arizona, Jim White, happens to be a longtime video convert. He's been through the mill, so he knows that, "The difficult point in this whole process is learning to be comfortable using the courses in a fluid way." He tries to meet that head-on in his 90-minute workshops for other professionals. One of his main props: a demo tape with segments of 10 programs on it.

"I expose them to the different programs and tell them how I use them," he explains. "I try to raise their enthusiasm toward the use of the programs. I'll stop the tape and talk about one, then play the next one and stop and talk about it."

Does Jim White get a good listen? It's about 50-50, he says. People that he relates well to in other matters "will listen to me and give it a try. Other people who are pretty well set in their ways, aren't real interested." But he keeps trying, even in the teachers' lounge. That's where communication is "the most effective," in his view. When he finds a tolerant ear, he's likely to say, "Hey, you ought to try this course. You could really use it."

California mentor teachers Ernie Hepworth and Jewell McCoy add their own subtleties to this pattern. This was Mrs. McCoy's first year as a mentor, a time for learning and for making (and screening) tapes at

home. "My job," she said, "is to learn all I can about the video and give in-services as I'm learning. Also, I have to get out all this information and establish libraries for us to use." As a teacher for 22 years, she needs no convincing that "The easier it is for a teacher to get ahold of material, the better, and the more use you will get from it. So, if I can have the tapes right there, and the VCRs are accessible, then a teacher has to put out very little energy."

Ernie Hepworth has concentrated much of her inservicing on explaining how to set up a VCR-based learning center in a classroom. Then, she and fellow mentors in her district have seen to it that available workshops were "covered," and that "people were coming back and saying, 'You should have seen what I saw on language arts today!'"

"a lot of positive feedback"

Bev Wolf crowds a lot into her school day, working with severely emotionally handicapped teenagers in Phoenix. But she was very ready to take on further duties as a trainer of teachers for ASSET, "because I'm sold on it." Now and then she's found teachers from schools like hers who don't work with video. "Why *not* use it?" she's said to them. "You've got kids who aren't going on to high school, who aren't going to go to Australia, and you can show it to them."

Teacher support often takes a less organized form, but again, teacher-to-teacher talking is the key. At the Herbert C. Green Middle School, in Placerville, California, eighth-grade science instructor Jim Ray is the video man. Boosting and perfecting the school's system is his "pet project." Beyond wiring the building for video, he set up the procedure for teachers to use in requesting playbacks; he has trained students as video aids to run the VCRs for those showings; and he has staged workshops for faculty members. Once he simply asked a clutch of teachers to pick out tapes they'd like to screen. "They went crazy!" he recalls. "Just about every teacher walked out with a couple of tapes to take home over the weekend."

Jim Ray also sold the school librarian. "She was a little hesitant about having this video stuff in the library," he says. So he worked with her, avoiding any hard sell. "Hey, take it slow," he advised. "Don't let it interfere with what you have to do in the library. Don't let it be a burden, and it won't be, if you take it easy" Today, says Jim Ray, "she's one of the big proponents of it. You should hear her!"

Teachers that we talked to in 12 states had one attitude in common: They were upbeat about what video has done for them in their classes. And fre-

quently they have climbed the steps to the pulpit to tell colleagues. Ned Brown and Bette Priest, both teachers for 15 years, exemplify this breed of latter-day apostles.

Trent Lamb, principal of Ned Brown's school in Strongsville, Ohio, remembers that several years ago, Brown "took it upon himself" to organize the video program there, setting out to tell other professionals, "here's what's available, and here's the equipment." Brown had the full range of responsibilities as a sixth grade teacher, but he has also assumed the role of AV coordinator. Says Lamb:

Ned helps teachers decide what programs would be appropriate, and helps them learn how to use various pieces of equipment. Ned's colleagues respect what he has to say, and if he says this program would be good in this particular context, chances are that's exactly what it would be. He doesn't give them bum steers.

It's natural to ask if Brown's powers of persuasion have worked at Allen School. "I'd like to think so," he remarks. "I know there are people using ITV now who didn't before. I know everybody, and they know me. They come and ask me. They get their questions answered every time."

Bette Priest hikes along a similar compass bearing at Curry School, in Tempe, Arizona. It has helped greatly that her principal, Louise Conti, has been so "really supportive" of ASSET's ITV, and has "encouraged us to use anything that will really help the kids." Mrs. Priest favors solving problems on her own, but periodically enlists seasoned video-users to help her, because she thinks teachers trust each other's judgment.

"If I say it's good," she explains, "they're going to trust me, since they work with me, more than they're

going to trust someone who comes in from the outside. If I say this is a good program, they are at least more inclined to give it a try."

Curry School has a "really good, cohesive group" of teachers, Bette Priest has found. They interact a lot. They talk about the instruction going on in the school. And, as Mrs. Priest says, "they love to chit-chat, so you bring in lots of doughnuts and coffee, and you've got a captive audience. Peer experience is really important."

The nine or more levels of support for video as a teaching enhancement mean nothing, in the long run, if classroom professionals don't hear the music. They are the ones who must choose a program unit, schedule a VCR or a building-system playback, preview the tape, study the accompanying manual, and then manipulate the viewing and suggested follow-up activities to fit smoothly with their curriculum. In the saturated moments of the school day, that burden could easily be jettisoned, as just so much dubious cargo.

In our search through the video-using community, we talked to teachers more than willing to add that extra weight, convinced that in the long run the pay-off will be worth their effort. The amount of experience in a classroom did not seem to make much difference. The advocate might have been an Earl Skingley, with 34 years of teaching, or a Doris Wagner, with 37, or a Barbara Orr, 29 years a math teacher and rescued in a traumatic moment by the arrival of *Computerbreak*. Or it could have been a Carol Johnson, of Beloit, a teacher for seven years, who talked with cheerful conviction about a number of worthy video series, among them, *ThinkAbout*: "It really fits. It's just the perfect thing to have."

Afterword

The men and women we talked to over a long year's travels had at least one view in common: an enthusiasm for video as a valued way of enhancing classroom learning.

From these people came important insights. Access to equipment was no longer a sizable problem. From California to New Jersey, New York and South Carolina, open circuit broadcasts were transmitting ITV. Cable companies were providing channels for school reception. ITFS systems had their role in different states, and buildings had been cabled internally to carry video right to a teacher's side. And, of vast importance, there was the VCR.

We saw increasingly how much the VCR has going for it in public education—easy to use, flexible, reliable, affordable. Children know how to work them. So do teachers. Getting the message, districts have gone to the marketplace, purchase orders in hand. Today, the VCR is a turned-on reality in schools.

So is availability of effective programming keyed to the curriculum. Name a basic subject and grade level and, advocates in the field told us, video units can be found to match them. Programs exist to take children to a pond, put them on a wind-buffed ship, enliven their imaginations for writing, provide images for concepts they have trouble visualizing, manage their feelings.

Video programs could also accelerate change. In just the last 15 years, producers have turned out series on thinking skills, economics, emotional health, and on the principles underlying modern technology. Video, we found, has also helped expand access to education for those studying at home, or in distance

learning projects, or in a detention center. Thousands of immigrants had a chance this summer to acquire survival language from *Learning English*, broadcast over KLCS, Los Angeles.

But while equipment and programming seem quite adequate, one gnawing question remains: how strong is the human support network behind the teacher? New York State's Dave Bensley touched the pulse of the problem. "If you don't have an individual who wants to put the time and energy into it," he told us, "it isn't going to work." He was talking about a building media coordinator, but the support chain must be far longer.

Teachers are crowded as never before. To help them use video well, there is an unprecedented need for state-traveling advocates like Pat Miller and Ron Unmacht, for wisely supportive associate superintendents like Dr. John Stolt, for dedicated principals like Dick Koontz and Dr. Tom Smith, for circuit riders like Cathie Johnson, Audrey Eddy, and Martha Mills.

There is a need, above all, for role models within the community of teachers. In the Valley of the Sun above Phoenix, Vietnam veteran Jim White fills that bill—a dedicated exponent of using TV to invigorate the curriculum and trainer of other teachers in how to apply these resources in a class. If video is prospering today—and our travels gave us good clues to support that conclusion—it is because there are classroom entrepreneurs on the firing line, people like Jim White of Cave Creek, Arizona. For the benefit of today's learners and those yet to come, this breed must be sustained and its ranks multiplied.

APPENDIX A: Those Interviewed for This Book

The project embodied in these pages was conceived early in 1986 as part of AIT's Twenty-Fifth Anniversary celebrations in 1987. The object was to talk to teachers about why they use video in class to complement instruction. To that end, AIT's Executive Director, Ed Cohen, and his marketing director at the time, Roy Morgan, set out some guidelines and pointed me toward different parts of the country where video has been put to work in schools.

The interview process went on from early spring 1986 until well into spring '87, covering 14,000 miles and making me acquainted with people in 12 states. Overall, experiences and viewpoints were collected from a total of 158 men and women—83 teachers; 30 media coordinators at building, district, and county levels; and 45 others, largely administrators, but also including a sprinkling of students. I am grateful to them all, not only those who sat patiently for interviews, but also those who opened doors and made the itinerary practical and meaningful. These are the people with whom I talked:

Administrators

Judy Aakre
Director, Regional Service Unit,
CESA # 4
Coordinator, "Project Circuit"
Onalaska, WI

Anita Adams
Principal, Russell Elementary School
Columbia, MO

Dr. Donald Antonecchia
Principal, Pleasantville High School,
Pleasantville, NY

Dr. Muriel Battle
Principal, West Junior High School
Columbia, MO

Chet Bradley
Consultant, health education
State Department of Public Instruction
Madison, WI

Linda Coutts
Coordinator, elementary math
Columbia, MO

Roland Cross
Assistant Superintendent, Oregon
Schools (retired)
Oregon, WI

Audrey Eddy
Consultant, media utilization
South Carolina Department of
Education
Spartanburg, SC

Clyde H. Green
Director, Office of Instructional
Technology
South Carolina Department of
Education
Columbia, SC

Jim Griffin
Principal, Randall School
Madison, WI

Joseph J. Hagwood, Jr.
Director of Curriculum Services
Director, Audiovisual
Plumas County Unified School
District
Quincy, CA

Mary Lou Hamill
Assistant Director of Education
School Services, New Jersey Network
Trenton, NJ

James Hofman
Principal, Ironia Elementary
Randolph Township, NJ

Catherine House
Coordinator for Gifted, Stevenson
Elementary School
Ransomville, NY

Cathie Johnson
Director, School Services
Southern Wisconsin Educational
Communications Service
Madison, WI

Pam Johnson
Director of Education Services, WNED
Buffalo, NY

Dr. Carl Knutson
Supervisor of Physical Education,
Health, and Recreational Safety
(retired)
State Department of Education
St. Paul, MN

Dick Koontz
Principal, Lattie Coor School
Avondale, AZ

Roberta Kuchta
Consultant, instructional technology
Northwest Instructional Broadcast
Service
Elmwood, WI

Trent Lamb
Principal, Allen Elementary School
Strongsville, OH

Timothy McClure
Coordinator, Staff Development
Butte County Office of Education, CA

Anna McHale
Curriculum supervisor and media
facilitator
Park Ridge, NY

Calli Merrick
Principal, Aridondo School
Tempe, AZ

Juanita Miller
Eldorado County Office of Education
Eldorado County, CA

Dr. Patricia Miller
Director, ASSET, Channel 8
Phoenix, AZ

Martha Mills
KQED ITV Coordinator
Sacramento, CA

Dr. Karen Newman
Cochise County Superintendent's
Office
Supervisor of Education, Juvenile
Detention Center
Bisbee, AZ

Carol Nowark
Assistant Manager, Educational
Services, WNED-TV
Buffalo, NY

Becky Quinn
Science Coordinator, K-12
Columbia, MO

Robert Reese
Chief Supervisor of Utilization
Office of Instructional Technology
South Carolina Department of
Education
Columbia, SC

Barbara Ross
Consultant, Gifted and Talented
Program
Elizabeth School System
Elizabeth, NJ

Dr. Liz Schmitz
Principal, Midway Elementary School
Columbia, MO

Marie Scruggs
Vice Principal and Science
Coordinator, West Boulevard
Elementary School
Columbia, MO

Dr. Thomas Smith
Principal, Springdale Elementary
School
West Columbia, SC

Ron Unmacht
Manager, School Services, Division of
Educative Services
Wisconsin Educational Radio and
Television Networks
Madison, WI

Tom Valenti
Director, Education Services, WVIZ
Cleveland, OH

Dr. O. V. Wheeler
Principal, Ridgeway Elementary
School
Columbia, MO

Media Coordinators

Mark Banks
Media representative, Starpoint School
District
Niagara County, NY

John M. Bedford
Director of Cable Operations,
Strongsville School
Strongsville, OH

Arlene Behan
Library media specialist, Riverside
High School
Buffalo, NY

Ray Benjamin
AV Producer/Director, Irvington
School District
Irvington, NJ

John Cilli
Library media specialist, Madison
Avenue School
Irvington, NJ

James F. Eby
Media Center Coordinator, Office of
the Glenn County
Superintendent of Schools
Willows, CA

Joe Fanning
Secondary Media Coordinator
Elizabeth, NJ

Dr. Curt Fuchs
Director of Instructional Media Center
Columbia, MO

Dr. Linda Hayes
Librarian and Media Specialist,
Northside Middle School
West Columbia, SC

Mary Beth Hinze
Director of Media Center, Griffith
School
Phoenix, AZ

April Hoffman
Coordinator, Instructional Media
Center, Randall School
Madison, WI

Richard R. Jessup
Coordinator, ITV and District
Instructional Media,
James Caldwell High School
West Caldwell, NJ

June Johnson
Librarian, Old Farmers Road School
Washington Township, NJ

Tom Kennedy
Director, Media Center, Beloit Schools
Beloit, WI

Michael R. Kolesar
Media Coordinator, Pleasantville
High School
Pleasantville, NY

Anita Lockwood
Librarian, Ironia Elementary School
Randolph Township, NJ

Dr. Patricia Marshall
Instructional Coordinator, KLCs
Los Angeles, CA

Judy Parham
Librarian, James F. Byrnes High
School
Duncan, SC

Don Parnes
Media Coordinator, Elizabeth Public
Schools
Elizabeth, NJ

Pat Powell
Media Specialist, West Junior High
School
Columbia, MO

Violet Raykovich
Librarian, Bloomer High School
Bloomer, WI

Drucilla Reeves
Media Coordinator, Lexington County
District Two
West Columbia, SC

Ada Reischel
Library Aide, High School
Bloomer, WI

Adrian Roberts
Former Media Coordinator, Butte
County Office of Education
Oroville, CA

Dennis Rumme
Supervisor, AV Media, Irvington
School District
Irvington, NJ

Laverne Russell
Director, Media Center, Tucson
Unified School District
Nailor Middle School
Irvington, NJ

Laurie Switzer
Producer/Programmer, ITV
Strongsville, OH

Robert Taylor
Director, Instructional Support
Services
Educational Communications
Division
BOCES
Norwich, NY

Judy Transue
Librarian, Florence M. Burd School
Andover Township, NJ

Barb Winans
Media specialist, Rock Bridge High
School
Columbia, MO

Teachers

John Adamchak
Science and AV adviser, Myrtle Avenue
School
Irvington, NJ

Joe Allen
English Chairperson, James F. Byrnes
High School
Duncan, SC

Janice Allison
Home school teacher, George
Washington Carver Christian
School
Acampo, CA

Jim Andrews
Industrial arts, AV adviser, Union
Avenue School
Irvington, NJ

Dorothy Baer
Home economics and family life
(retired), Memorial High School
Beloit, WI

Betsy Baker
Gifted and Talented, Fairview School
Columbia, MO

Jane Bautch
Foreign language, Arcadia High
School
Arcadia, WI

Dave Bensley
Social studies department chairman,
Sherburne-Earlville Central School
Sherburne, NY

Judy Bostrum
Second grade, Newcrest Elementary
School
Ellsworth, WI

Rosemary Boylan
Fourth grade, Park Ridge School
Park Ridge, NJ

Ned Brown
Sixth grade and media coordinator,
Allen Elementary School
Strongsville, OH

Virginia Brown
Teacher to homebound (tutors Cyndi
Wright)
Cottonwood, AZ

Tomasina Burns
Fifth grade, Davenport School
Egg Harbor, NJ

- Linda Burrard
Sixth grade and assistant principal,
San Andreas Elementary School
San Andreas, CA
- Peggy Carr
Kindergarten, Pee Dee Elementary
Conway, SC
- Carrie Chenoweth
Parent/user
Sacramento, CA
- Robert D'Agostino
Electronics and power mechan-
ics, Denbigh High School
Newport News, VA
- Lee Davis
Seventh grade life sciences, McNeel
Junior High School
Beloit, WI
- Doreen Dell
Fourth-fifth grade, Dodge Elementary
School
Williamsville, NY
- Beth Elver
World geography and remedial
reading
Oregon, WI
- Mary Evans
Gifted and talented, Fairview School
Columbia, MO
- Susan Fales
Ridgeway Elementary School
Columbia, MO
- Anthony Fiorella
Latin, Ossining High School
Ossining, NY
- Lisa Fontana
Kindergarten, Diamond Valley School
Alpine County, CA
- Judy Frady
Fifth grade, Cowpens Elementary
School
Cowpens, SC
- Karen Gibson
First grade, Midway Elementary
Columbia, MO
- Linda Giddings
Kindergarten, Parkside Elementary
School
Columbus, MO
- Arlene Glasser
English, James Caldwell High School
West Caldwell, NJ
- Ruth Gunderman
Third-fourth grade, Randall
Elementary School
Madison, WI
- Linda Haist
Gifted and talented coordinator, Mill
Middle School
Williamsville, NY
- Lori Hardy
Home school teacher (five children)
Phoenix, AZ
- Marilea Heffernan
Sixth grade and former mentor, Kohler
Elementary School
Sacramento, CA
- Ulrich Henes
Home school teacher
Madison, WI
- Ernestine Hepworth
Kindergarten-second grades, McKinley
Elementary School
Gridley, CA
- Jack Jensen
Fifth grade, West Boulevard
Elementary
Columbia, MO
- Carol Johnson
Fifth-sixth grade, Robinson
Elementary School
Beloit, WI
- Richard Jones
Math, applied sciences, Uintah Basin
Vo-Tech Center
Roosevelt, UT
- Carol King
Fifth grade, Green Elementary
Placerville, CA
- Bob Kohen
Politics, psychology, Chico High
School
Chico, CA
- Ellen Kulawiak
Fourth-fifth grades perceptually
impaired students, Florence M. Burd
School
Andover Township, NJ
- Linda Maher
Home school teacher, Homestead
School
Ceres, CA
- Andrea Mathis
Second grade, Cowpens Elementary
School
Cowpens, SC
- Delia McAuliffe
Ninth grade English and media
specialist, Buffalo Traditional High
School
Buffalo, NY
- Rob McClurg
Sixth grade, science and other subjects,
mentor, Jackson Elementary School
El Dorado Hills, CA
- Jewell McCoy
Mentor, Parker Whitney School
Rocklin, CA
- Marilyn McDonald
Fourth grade, Gwyneth Ham School
Yuma, AZ
- Fe Lou McElroy
Third grade, Oregon Schools
Oregon, WI
- Charles Montgomery
Physics, Scarlet Oaks Vocational
Center
Cincinnati, OH
- Richard Mruk
Seventh-eighth grade science, Iroquois
Middle School
NY
- Marcia Murphy
Russell Elementary School
Columbia, MO
- Ray Noll
Social studies, West Junior High
School
Columbia, MO
- Jan O'Connor
Third grade, Old Farmers Road
School
Washington Township, NJ
- Jerry Olio
Math, reading, science, C. K. Price
Middle School
Chico, CA
- Barbara Orr
Math, computers, Northside Middle
School
West Columbia, SC
- Joanne Piper
Tenth grade English, speech, TV
workshop, Westlake High School
Westlake, OH
- Bette Priest
Third grade, Curry School
Tempe, AZ
- Anne Puccio
Sixth grade, science resource specialist,
Samuel Kennedy Elementary School
Elk Grove, CA
- Richard Quontamatteo
Fifth grade, San Andreas Elementary
School
San Andreas, CA
- Jim Ray
Eighth grade physical science, TV
workshop, Herbert C. Green Middle
School
Placerville, CA
- Janet Reilly
Science, Mill Middle School
Williamsville, NY
- Mark Robinson
Educable handicapped classes,
Belleville Middle School
Orangeburg, SC
- Joan Roseman
Fifth grade, Florence M. Burd School
Andover Township, NJ
- Gerry Ruehle
Fifth-sixth grade, Manzaneda School
Phoenix, AZ
- Linda Scott
West Junior High School
Columbia, MO
- Joanne Simpson
Second grade, Greene Central School
Greene, NY

Tom Sinks
Fifth-sixth grades, Oregon Schools
Oregon, WI

Earl Skingley
Fifth grade, Clover Bank School
Hamburg, NY

Lenora Snedeker
Senior English, Oxford Academy
and Central High School
Oxford, NY

Jeff Snyder
Physics, Columbia-Montour Vo-
Tech School
Bloomsburg, PA

Betty Stepniak
Fifth grade, Old Farmers Road
School
Washington Township, NJ

Richard Taxera
Substitute teacher, Independence High
School
Placerville, CA

Jean Taylor
Family life, James F. Byrnes High
School
Duncan, SC

Bill Thomas
Industrial arts, Rogional Vocational
School
Fort Wayne, IN

Joyce Tompkins
Fourth grade, Florence M. Burd
School
Andover Township, NJ

Janice Toto
Educable mentally handicapped
classes, Belleville Middle School
Orangeburg, SC

Linda Ulrich-Hagner
Home economics, Kenmore High
School
Kenmore, NY

Doris Wagner
First grade, Colfax Elementary
School
Colfax, WI

Jim White
Second grade, Cave Creek Elementary
School
Cave Creek, AZ

Barb Widder
Fifth grade, Randall School
Madison, WI

Pat Wilson
History, Independence High School
Placerville, CA

Joyce Wingate
Fifth grade, Springdale Elementary
School
West Columbia, SC

Bev Wolf
Severely emotionally impaired class,
"Brill Street School" of Phoenix
Youth Evaluation and Treatment
Centers
Phoenix, AZ

Don Yost
Science chair, Rancho Cordova High
School
Rancho Cordova, CA

Martha Zion
Civics, cheerleading coach, Brookland
Cayce High School
Cayce, SC

Students and Recent Graduates

Dee Dee Angst
Arcadia High School
Arcadia, WI

Richard Charles
Apprentice at Newport News
Shipbuilding Company
Newport News, VA

Ben Heller
Pleasantville High School
Pleasantville, NY

Colby Leonard (and mother)
Middle school
El Dorado Hills, CA

Cyndi Wright
Homebound student
Cottonwood, AZ

APPENDIX B:

Sources of Video Programs

- | | |
|---|---|
| <i>All About You</i> , AIT | <i>On the Level</i> , AIT |
| <i>American Scrapbook</i> , GPN | <i>Parenting</i> , Pennsylvania State AV Series |
| <i>Art Maker</i> , WIT | <i>Portrait of America</i> , Raintree Publishers |
| <i>Assignment: The World</i> , AIT | <i>Powerhouse</i> , Center for the Humanities |
| <i>Atoms and Molecules</i> , EBEC | <i>Principles of Technology</i> , AIT |
| <i>Bioscope</i> , AIT | <i>Read All About It</i> , TVOntario |
| <i>The Blue and the Gray</i> , Dallas County
Community College | <i>Reading Rainbow</i> , GPN |
| <i>Book Bird</i> , CTI | <i>Self Incorporated</i> , AIT |
| <i>Community Helpers</i> , Centron Films | <i>Square One</i> , CTW |
| <i>Computerbreak</i> , GPN | <i>Storybound</i> , CTI |
| <i>Cover to Cover</i> , WETA, Washington, D.C. | <i>Storylords</i> , AIT |
| <i>Design for Driving</i> , KLCS, Los Angeles | <i>The Story of English</i> , Films, Inc. |
| <i>Discovering</i> , AIT | <i>Teaching Reading Comprehension</i> , AIT |
| <i>Dragons, Wagons, and Wax</i> , CTI | <i>Teletales</i> , AIT |
| <i>Eureka</i> , TVOntario | <i>Terra: Our World</i> , AIT |
| <i>Finding Our Way</i> , WIT | <i>ThinkAbout</i> , AIT |
| <i>Footsteps</i> , Maryland Center for Public
Broadcasting | <i>Trade-offs</i> , AIT |
| <i>Gather 'Round</i> , CTI | <i>Truly American</i> , GPN |
| <i>Gettin' To Know Me</i> , GPN | <i>Understanding Our World</i> , GPN |
| <i>Give & Take</i> , AIT | <i>Up Close & Natural</i> , AIT |
| <i>Homework Hotline</i> , KLCS, Los Angeles | <i>VideoMath</i> , KLCS, Los Angeles |
| <i>Inside/Out</i> , AIT | <i>The Voyage of the Mimi</i> , Bank Street Project
in Science and Mathematics |
| <i>The Inside Story with Slim Goodbody</i> , AIT | <i>Well, Well, Well with Slim Goodbody</i> , AIT |
| <i>It Figures</i> , AIT | <i>WhatAbout</i> , AIT |
| <i>Learning English</i> , KLCS, Los Angeles | <i>What's in the News</i> , ITS |
| <i>The Letter People</i> , KETC, St. Louis | <i>The Word Shop</i> , CTI |
| <i>Like You, Like Me</i> , EBEC | <i>Wordsmith</i> , AIT |
| <i>Math Cycle I</i> , GPN | <i>The World's Children Series</i> , Journal Films |
| <i>Math Works</i> , AIT | <i>The Write Channel</i> , AIT |
| <i>MeasureMetric</i> , AIT | <i>You Can Write Anything</i> , TVOntario |
| <i>Moving Right Along</i> , MTI | <i>3-2-1 Contact</i> , CTW |
| <i>The Naturescene</i> , South Carolina ETV | <i>48 Hours on Crack Street</i> , Interactive Learning |

Addresses for the sources listed on page 64:

AIT

Agency for Instructional Technology
Box A
Bloomington, IN 47402
800-457-4509

**Bank Street Project in Science
and Mathematics**

Bank Street College of Education
610 West 112th Street
New York, NY 10025
212-663-7200

The Center for Humanities

The Center for Humanities, Inc.
Communications Park
Box 1000
Mt. Kisco, NY 10549
800-431-1242
914-666-4100

Centron Films

(distribution rights through MTI)
108 Wilmot Road
Deerfield, IL 60015-9990
800-463-5755

CTI

Children's Television
International, Inc.
8000 Forbes Place
Suite 201
Springfield, VA 22151
703-321-8455

CTW

Children's Television Workshop
1 Lincoln Plaza
New York, NY 10023
212-595-3456

Dallas County Community College

Dallas County Community College
Center for Telecommunications
4343 North Highway 67
Mesquite, TX 75150
214-324-7988

EBEC

Encyclopedia Britannica
Educational Corporation
425 N. Michigan Ave.
Chicago, IL 60611
312-321-7483

Films, Inc.

Films, Inc.
5547 N. Ravenswood Ave.
Chicago, IL 60640-1197
800-323-4222

GPN

Great Plains National
PO Box 80669
Lincoln, NE 68501-0669
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Interactive Learning

Interactive Learning
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Greenwich, CT 06836
800-227-2754

ITS

International Telecommunications
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Reston, VA 22091
703-476-4468

Journal Films, Inc.

Journal Films, Inc.
930 Pitner Avenue
Evanston, IL 60202
312-328-6700
800-323-5448

KETC-TV

KETC (Channel 9, St. Louis)
6996 Millbrook Blvd.
St. Louis, MO 63150
314-725-2460

KLCS-TV

KLCS-TV, Channel 58
1061 West Temple, Rm. 106
Los Angeles, CA 90012
213-625-6966

Maryland Center for Public Broadcasting

Maryland Center for Public Broadcasting
11767 Bonita Avenue
Owings Mills, MD 21117
301-356-5600

MTI

MTI Teleprograms, Inc.
108 Wilmot Road
Deerfield, IL 60015-9990
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312-940-1260

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Raintree Publishers

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South Carolina ETV

South Carolina ETV Network
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TVOntario

TVOntario
U.S. Sales Office
Suite 206
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Chapel Hill, N.C. 27514
800-331-9566

WETA-TV

WETA-TV
Box 2626
Washington, DC 20013
703-998-2716

WIT

Western Instructional Television
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Los Angeles, CA 90028
213-466-8601

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